



PIONEER®
The future of sound and vision.

Service Manual

**ORDER NO.
ARP2087**

STEREO DOUBLE CASSETTE DECK RECEIVER

RX-323_{SD}

- Refer to the service manual ARP1880, RX – 322/SD type.
- This manual is applicable to the RX – 323/SD type.

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153, Japan

PIONEER ELECTRONICS SERVICE INC. P.O. Box 1760, Long Beach, California 90801 U.S.A.

PIONEER ELECTRONICS OF CANADA, INC. 505 Cochrane Drive, Markham, Ontario L3R 8E3 Canada

PIONEER ELECTRONIC [EUROPE] N.V. Keetberglaan 1, 2740 Beveren, Belgium

PIONEER ELECTRONICS AUSTRALIA PTY. LTD. 178-184 Boundary Road, Braeside, Victoria 3195, Australia TEL: [03] 580-9911

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YQ JULY. 1990 Printed in Japan.

CONTRAST OF MISCELLANEOUS PARTS

NOTES:

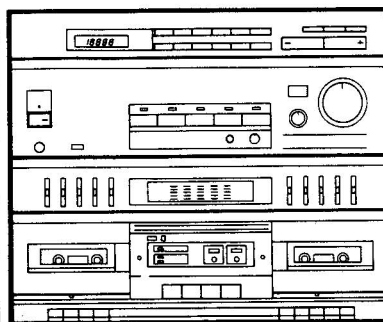
- Parts without part number cannot be supplied.
- The $\triangle$ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

The RX-323/SD type is the same as the RX-322/SD type with the exception of the following sections.

Mark	Symbol & Description	Part No.		Remarks
		RX-322/SD type	RX-323/SD type	
	Button (FUNCTION)	AAD1577	AAD1760	
	Button (BAND)	AAD1579	AAD1759	
	Button (COPY)	AAD1576	AAD1761	
	Button (STATION)	AAD1578	AAD1574	
	Power panel	AAK1727	AAK1675	
	Deck center panel A	AAK1728	AAK1942	
	Deck center panel B	AAK1729	AAK1946	
	Spectrum analyzer panel B	AAK1731	AAK2030	
	Door panel L	AAK1732	AAK1697	
	Door panel R	AAK1733	AAK1698	
	Tuner display panel	AAK1734	AAK1952	
	Function panel	AAK1735	AAK1684	
	Door R	AAN1131	AAN1207	
	Door L	AAN1132	AAN1208	
	Front panel	AMB1537	AMB1704	
	Packing case	AHD1746	AHD1930	
	Operating Instructions (English,chinese,spanish)	ARE1133	ARE1163	

Service Manual

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ORDER NO.
ARP1880

STEREO CASSETTE TAPE DECK RECEIVER

RX-322

- This manual is applicable to the RX-322/SD type.

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1. SPECIFICATIONS

Amplifier Section

Continuous Average Power Output is 36 watts* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz with no more than 0.09% total harmonic distortion.**

Music power (both channel driven)
 100 W + 100 W (1 kHz, T.H.D. 10 %, 8 Ω)
 Peak music power..... 400 W

Signal-to-Noise Ratio (IHF, short-circuited, A network)
 PHONO MM..... 72 dB
 CD, VIDEO/AUX..... 90 dB
 Input (Sensitivity/impedance)
 PHONO MM..... 2.5 mV/47 kΩ
 CD, VIDEO/AUX..... 150 mV/47 kΩ
 MIC..... 0.6 mV/10 kΩ

Frequency Response
 PHONO MM 20 Hz to 20,000 Hz ± 2 dB
 CD, VIDEO/AUX 20 Hz to 50,000 Hz ± 3 dB
 Graphic Equalizer frequency band
 100 Hz, 330 Hz, 1 kHz, 3.3 kHz, 10 kHz, ± 8 dB

* Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifier.
 ** Measured by Audio Spectrum Analyzer.

FM Tuner Section

Frequency range 87.5 MHz to 108 MHz
 Usable Sensitivity 14.2 dBf, IHF (1.4 μV/75 ohms)
 50 dB Quieting Sensitivity... Mono: 20 dBf (2.7 μV/75 ohms)
 Stereo Separation 43 dB(1 kHz)
 Frequency Response 19 dB (20 Hz to 15 kHz)
 Antenna Input 75Ω unbalanced
 300Ω balanced

AM Tuner Section

Frequency range
 When 10 kHz step 530 kHz to 1,600 kHz
 When 9 kHz step 531 kHz to 1,602 kHz
 Sensitivity (IHF, Loop antenna) 385 μV/m
 Antenna Loop Antenna

Cassette Tape Deck Section

Systems 4 track, 2-channel stereo
 Heads Recording/playback head × 1
 Playback head × 1
 Erasing head × 1
 Motor DC servo 2 speed motor × 2
 Wow and Flutter No more than 0.15% (WRMS)
 Fast Winding Time Approximately 105 seconds
 (C-60 tape)
 Frequency Response
 - 20 dB recording:
 Normal tape 35 Hz to 14,000 Hz ± 6 dB
 CrO₂ 35 Hz to 15,000 Hz ± 6 dB
 Signal-to-Noise Ratio
 Dolby NR OFF 50 dB
 Noise Reduction Effect
 Dolby B type NR ON More than 10 dB (at 5 kHz)

Miscellaneous

Power requirements
 AC 110 V/120—127 V/220 V/240 V (switchable),
 50/60 Hz
 Power Consumption 390 W
 Dimensions 420(W) × 349.5(H) × 303(D) mm
 16-9/16(W) × 13-3/4(H) × 11-15/16(D) in
 Weight (without package) 8.2 kg (18 lb 1 oz)

Furnished Parts

FM T-type Antenna 1
 AM Loop Antenna 1
 Operating Instructions 1
 Remote control unit 1
 Dry cell batteries [AAA(R03)] 2

2. EXPLODED VIEWS AND PARTS LIST

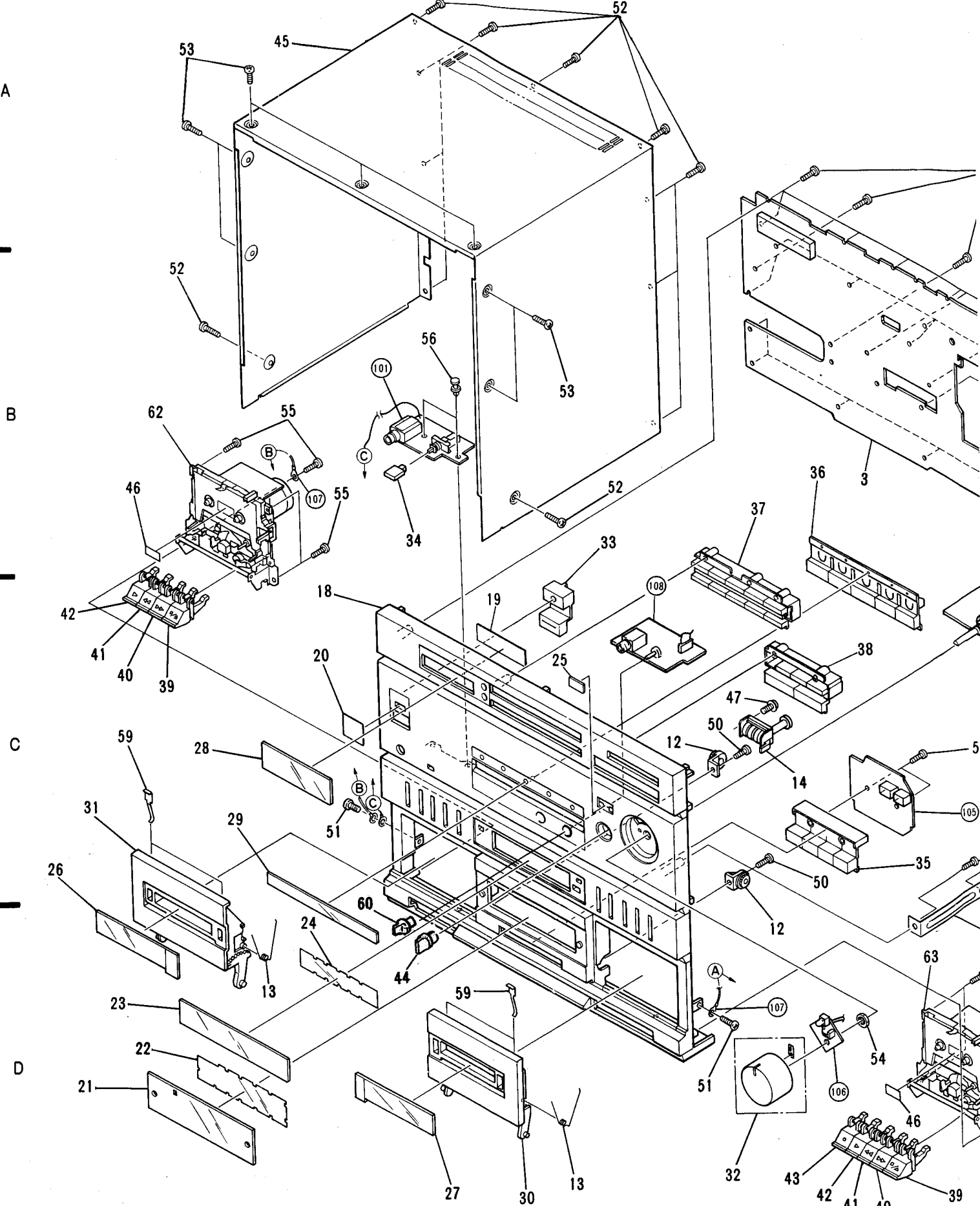
- NOTES:
- Parts without part number cannot be supplied.
 - The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
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2.1 EXTERIOR

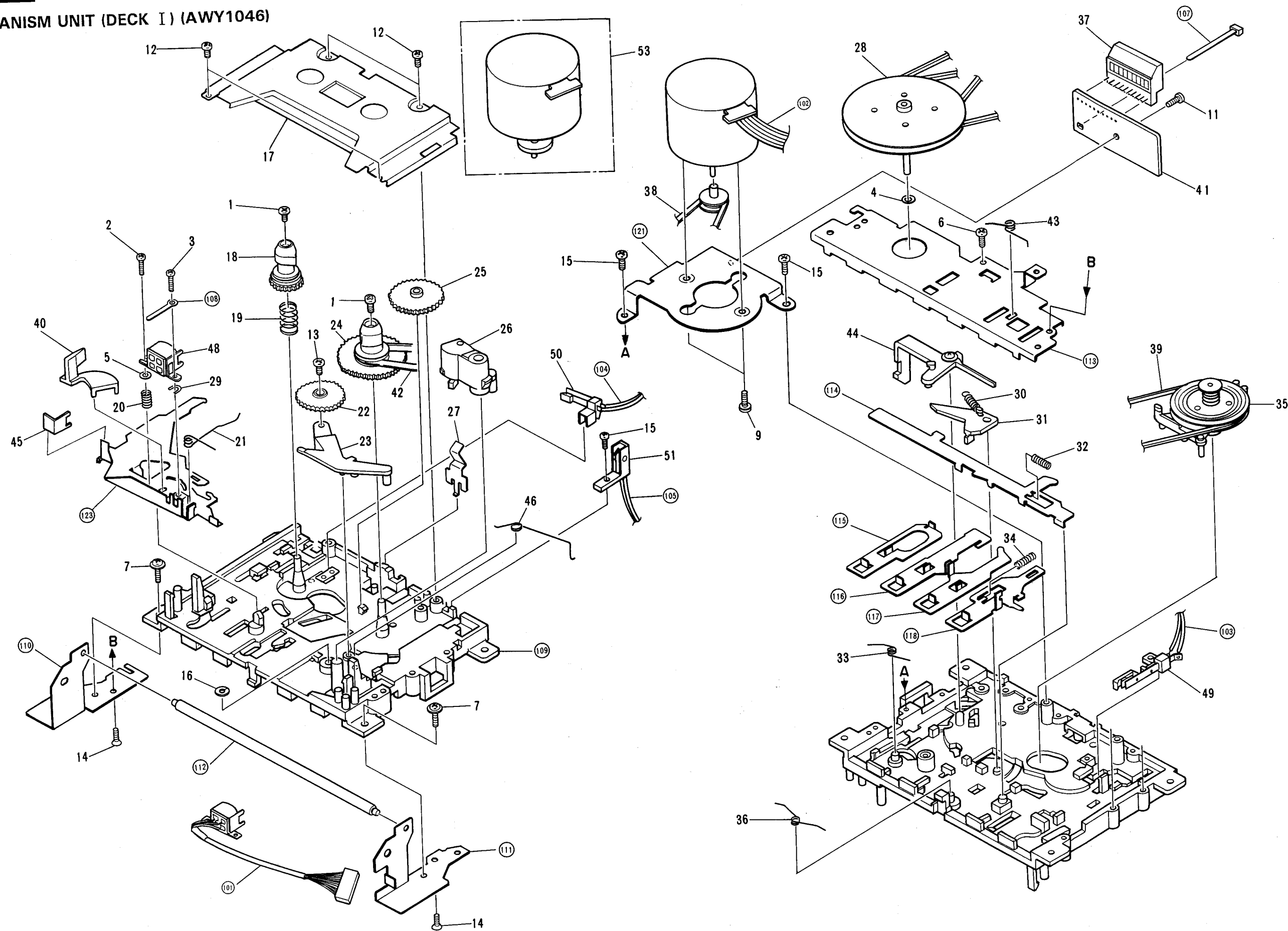
Parts list of Exterior

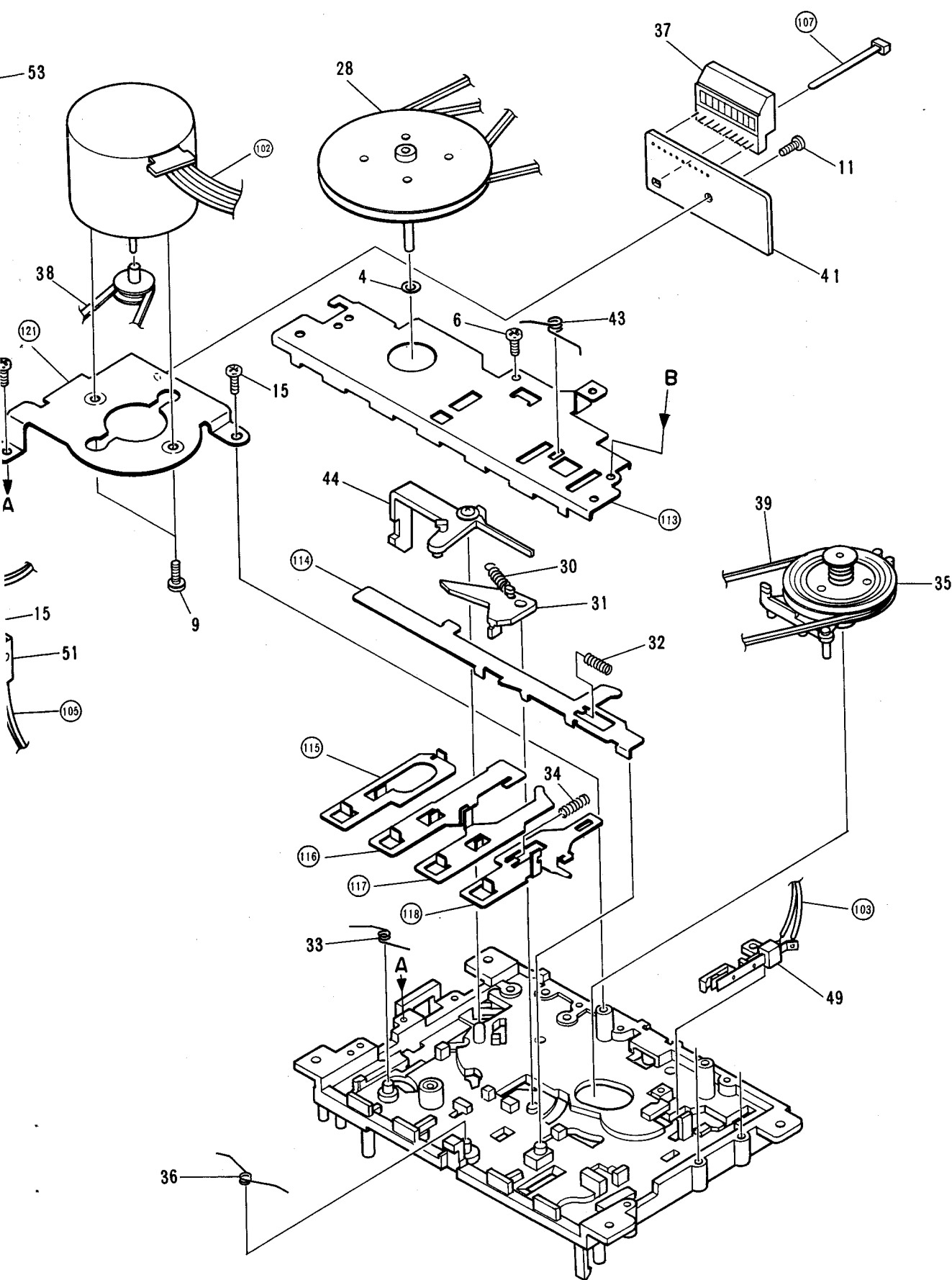
Mark	No.	Parts No.	Description	Mark	No.	Parts No.	Description
	1	AWZ2303	Power assembly		45	ANE1191	Bonnet case
	2	AWZ2304	Complex assembly		46	AAX1301	Remain display sheet
	3	AWZ2305	Control assembly		47	ABA1005	Screw
Δ	4	NJM7812FA	Regulator IC (IC702)		48	ABA1021	Screw (3 × 10)
Δ	5	2SA1302	Transistor (Q3,Q4)		49	ABA1037	Screw (3 × 14)
					50	BBZ26P080FMC	Screw
Δ	6	2SC3281	Transistor (Q1,Q2)		51	BBZ30P080FMC	Screw
Δ	7	ATS1240	Power transformer (T1)		52	BBZ30P080FZK	Screw
Δ	8	AKP1015	AC socket (1P OUTLET)		53	BPZ30P100FZK	Screw
Δ	9	AEK-122	Fuse (2A/125V,FU3,FU4)		54	NK90FUC	Nut
Δ	10	AEK-042	Fuse (T3.15A/250V,FU1,FU2)		55	VPZ30P080FMC	Screw
Δ	11	ADG1016	AC Power cord		56	AMR1066	Plastic revet
	12	AXA1004	Damper assembly		57	AKX-507	Line voltage selector switch (AC110V, 120V-127V, 220V, 240V, S1)
	13	ABH1059	Door spring		58	AKX1004	Line voltage selector switch (AC110V-127V, 220V-240V, S2)
	14	AAW1008	Counter		59	ABK1011	Keep plate
	15	AEC-784	Leg assembly		60	AAB1017	MIC VOLUME knob
				Δ	61	UPC7812H	Regulator IC (IC701)
	16	AEE1014	Mica sheet		62	AWY1046	MECHANISM unit (DECK I)
	17	AEP-113	Strain relief		63	AWY1047	MECHANISM unit (DECK II)
	18	AMB1537	Front panel		101		SP SW assembly
	19	AAK1227	FL filter		102		SP Out assembly
	20	AAK1727	Power panel		103		Connect assembly
					104		Main VR assembly
	21	AAK1728	Deck center panel A		105		Deck SW assembly
	22	AAK1729	Deck center panel B				
	23	AAK1730	Spectrum analyzer panel A		106		VR LED assembly
	24	AAK1731	Spectrum analyzer panel B		107		Earth lead
	25	AAK1680	IR filter		108		MIC MIX assembly
					109		
	26	AAK1732	Door panel L				
	27	AAK1733	Door panel R		110		Chassis
	28	AAK1734	Tuner display panel		111		Rear panel
	29	AAK1735	Function panel		112		Bottom plate
	30	AAN1131	Door R		113		Heat sink
					114		
	31	AAN1132	Door L				
	32	AAB1102	Rotary knob assembly		115		PCB Heat sink holder
	33	AAD1336	POWER Button		116		
	34	AAD1544	Push button		117		PC supporter
	35	AAD1576	COPY Button		118		Spacer
					119		Pin grommet
	36	AAD1577	FUNCTION Button		120		Terminal(EARTH)
	37	AAD1578	STATION Button		121		
	38	AAD1579	BAND Button				
	39	AAE1119	DECK Button (STOP/EJECT)				
	40	AAE1120	DECK Button (FF)				
	41	AAE1121	DECK Button (REW)				
	42	AAE1122	DECK Button (PLAY)				
	43	AAE1123	DECK Button (REC)				
	44	RAC1211	VR knob B				

Exterior



Parts	Mark
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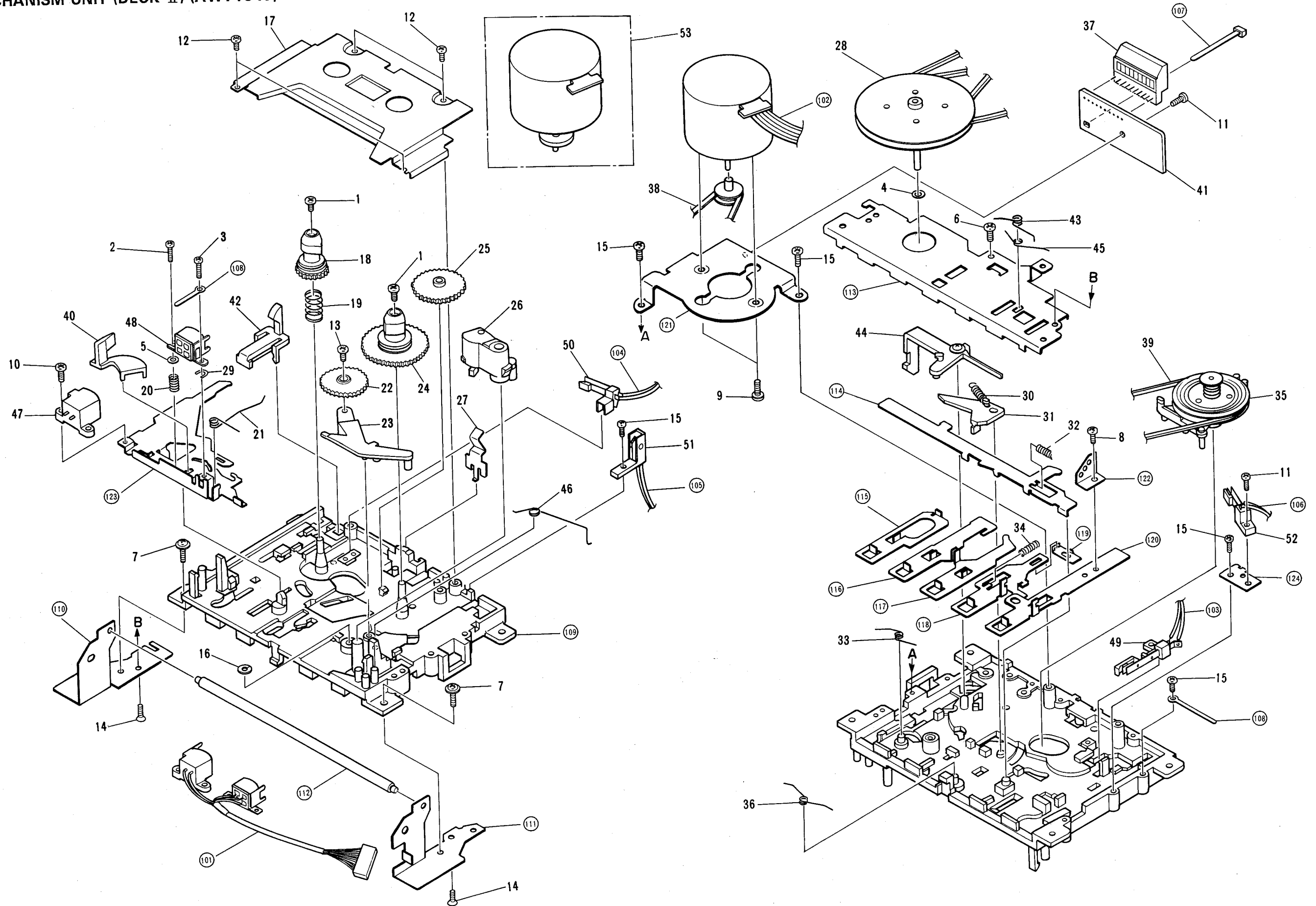




Parts list of Mechanism unit (DECK I) (AWY1046)

Mark	No.	Parts No.	Description	Mark	No.	Parts No.	Description
	1	AZB1165	Bush D		46	AZN1922	Spring
	2	AZB1166	N screw		47	.....	.....
	3	AZB1167	P screw		48	AZP1036	R/P head
	4	AZB1168	P washer		49	AZS1059	Leaf switch (MOTOR)
	5	AZB1169	F washer		50	AZS1060	Leaf switch (MUTE)
	6	AZB1170	Bush C		51	AZS1061	Leaf switch (CrO2)
	7	AZB1171	D screw		52	.....	.....
	8	.....	.....		53	AZX1021	Motor assembly
	9	AZB1173	P screw				
	10	.....	.....				
	11	AZB1176	D screw				
	12	AZB1183	L screw		101		Connector assembly
	13	AZB1184	Bush		102		Jumper wire
	14	AZB1190	L screw		103		Lead wire
	15	AZB1191	L screw		104		Lead wire
					105		Lead wire
	16	AZB1194	N washer				
	17	AZN1902	Mechanism cover		106		.....
	18	AZN1480	S reel		107		Nylon band
	19	AZN1481	C spring		108		Lug plate
	20	AZN1482	Azimuth C spring		109		Chassis assembly
					110		Holder button
	21	AZN1483	Pinch arm spring				
	22	AZN1484	Idler gear		111		Holder button R
	23	AZN1485	Idler arm		112		Shaft
	24	AZN1486	T reel assembly		113		Back plate
	25	AZN1487	F gear		114		Function lever
					115		SE lever
	26	AZN1488	Pinch arm assembly				
	27	AZN1489	Cassette spring		116		FF lever
	28	AZN1491	FW assembly W		117		REW lever
	29	AZN1494	Spacer C		118		PLAY lever
	30	AZN1498	T spring		119		.....
					120		.....
	31	AZN1499	S arm				
	32	AZN1500	C spring		121		Motor bracket
	33	AZN1501	Spring		122		.....
	34	AZN1502	C spring		123		Head base B
	35	AZN1503	Power arm assembly				
	36	AZN1504	Spring				
	37	AZN1573	Connector				
	38	AZN1506	Belt				
	39	AZN1507	Belt				
	40	AZN1508	Tape sensor				
	41	AZN1571	Main PCB				
	42	AZN1899	Counter belt				
	43	AZN1752	Spring				
	44	AZN1753	Eject arm				
	45	AZN1900	Tape guide				

2.3 MECHANISM UNIT (DECK II) (AWY1047)



P
N
A
B
C
D
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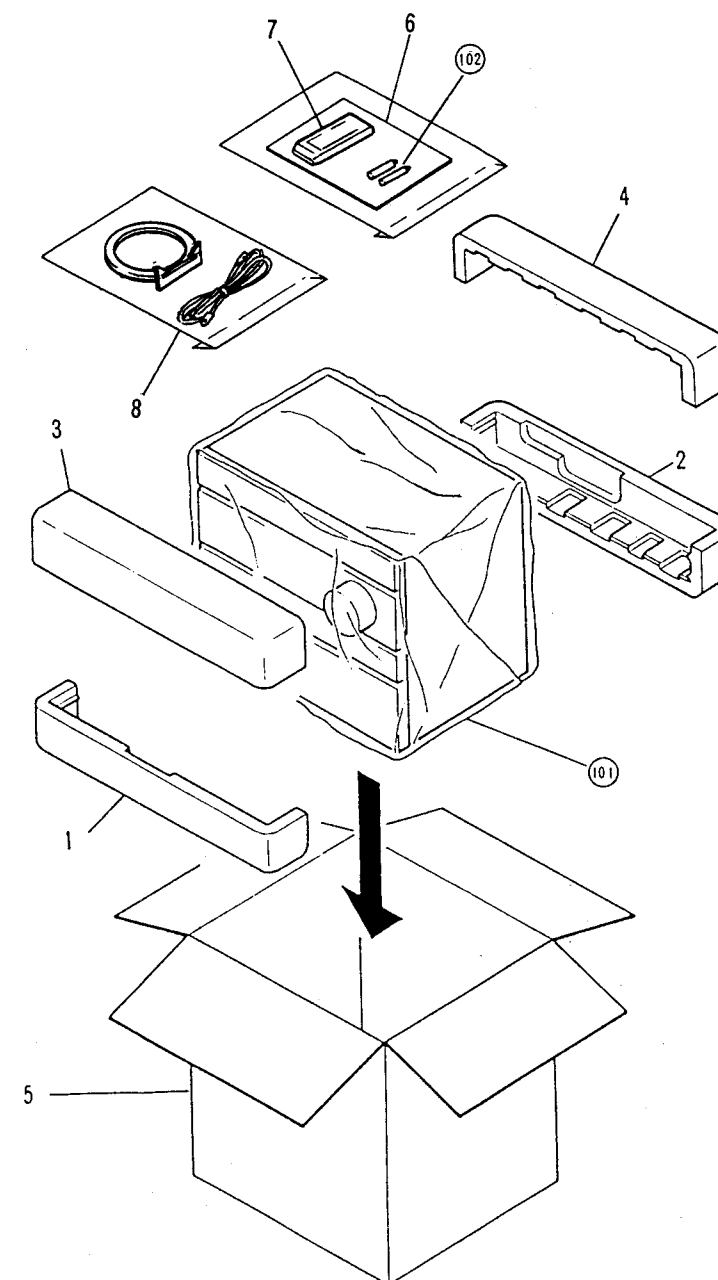
Parts list of Mechanism unit (DECK II) (AWY1047)

Parts list of mechanism				Parts list of mechanism			
Mark	No.	Parts No.	Description	Mark	No.	Parts No.	Description
A	1	AZB1165	Bush D	51	AZS1061		Leaf switch (CrO2)
	2	AZB1166	N screw	52	AZS1062		Leaf switch (REC)
	3	AZB1167	P screw	53	AZX1021		Motor assembly
	4	AZB1168	P washer				
	5	AZB1169	F washer				
	6	AZB1170	Bush C				
	7	AZB1171	D screw	101			Connector assembly
	8	AZB1172	D screw	102			Jumper wire
	9	AZB1173	P screw	103			Lead wire
	10	AZB1175	D bind screw	104			Lead wire
				105			Lead wire
	11	AZB1176	D screw				
	12	AZB1183	L screw	106			Lead wire
	13	AZB1184	Bush	107			Nylon band
	14	AZB1190	L screw	108			Lug plate
15	AZB1191	L screw	109			Chassis assembly	
			110			Holder button	
B	16	AZB1194	N washer				
	17	AZN1479	Mechanism cover	111			Holder button R
	18	AZN1480	S reel	112			Shaft
	19	AZN1481	C spring	113			Back plate
	20	AZN1482	Azimuth C spring	114			Function lever
				115			SE lever
	21	AZN1483	Pinch arm spring				
	22	AZN1484	Idler gear	116			FF lever
	23	AZN1485	Idler arm	117			REW lever
	24	AZN1486	T reel assembly	118			PLAY lever
	25	AZN1487	F gear	119			REC STOP lever
				120			REC lever
	26	AZN1488	Pinch arm assembly				
	27	AZN1489	Cassette spring	121			Motor bracket
	28	AZN1491	FW assembly W	122			RSW lever
29	AZN1494	Spacer C	123			Head base B	
30	AZN1498	T spring	124			SW plate	
C	31	AZN1499	S arm				
	32	AZN1500	C spring				
	33	AZN1501	Spring				
	34	AZN1502	C spring				
	35	AZN1503	Power arm assembly				
	36	AZN1504	Spring				
	37	AZN1505	Connector				
	38	AZN1506	Belt				
	39	AZN1507	Belt				
	40	AZN1508	Tape sensor				
	41	AZN1571	Main PCB				
	42	AZN1572	Interlock arm				
	43	AZN1752	Spring				
	44	AZN1753	Eject arm				
	45	AZN1903	Spring				
D	46	AZN1922	Spring				
	47	AZP1025	E head				
	48	AZP1036	R/P head				
	49	AZS1059	Leaf switch (MOTOR)				
	50	AZS1060	Leaf switch (MUTE)				

3. PACKING

Parts list of Packing

Mark	No.	Parts No.	Description
	1	AHA1242	Front pad A
	2	AHA1243	Rear pad A
	3	AHA1244	Front pad B
	4	AHA1245	Rear pad B
	5	AHD1746	Packing case
	6	ARE1133	Operating instructions (English, China, spanish)
	7	AXD1048	Remote control unit
	8	AEA1007	Antenna set
	9	AZA1055	Battery cover
	101		Sheet
	102		Battery



4. SCHEMATIC DIAGRAM

1. RESISTORS:

Indicated in Ω , $\frac{1}{4}W$, $\frac{1}{2}W$, $\pm 5\%$ tolerance unless otherwise noted k: k Ω , M: M Ω , (F): $\pm 1\%$, (G): $\pm 2\%$, (K): $\pm 10\%$ (M): $\pm 20\%$ tolerance

2. CAPACITORS:

Indicated in capacity (μF)/voltage (V) unless otherwise noted p: pF
Indication without voltage is 50V except electrolytic capacitor.

3. VOLTAGE, CURRENT:

Signal voltage at (100 W + 100 W 8 Ω) output (1kHz)
DC voltage (V) at no input signal
Value in () is DC voltage at rated power.

mA: DC current at no input signal

4. OTHERS:

Signal route.

Adjusting point.

The mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

* marked capacitors and resistors have parts numbers.

This is the basic schematic diagram, but the actual circuit may vary due to improvements in design.

PLAYBACK LINE
RECORDING LINE
FM LINE
AM LINE

COMPLEX ASSEMBLY (AWZ2304)

+12V OUTPUT
TURNABLE USE ONLY
WITH MODEL PL-2222
PL-3222 OR PL-3224Z.

DC POWER SUPPLY FOR TURNABLE DRIVER

FUNCTION SW

MUTE

IC303(1/2)
TC4052BP

IC304(1/2)
TC4052BP

IC305(1/2)
TC4052BP

IC306(1/2)
TC4052BP

IC307(1/2)
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IC442(1/2)
TC4052BP

IC443(1/2)
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IC444(1/2)
TC4052BP

IC445(1/2)
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IC446(1/2)
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IC447(1/2)
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IC461(1/2)
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IC465(1/2)
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IC466(1/2)
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IC472(1/2)
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IC473(1/2)
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IC474(1/2)
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IC506(1/2)
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IC510(1/2)
TC4052BP

IC511(1/2)
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IC512(1/2)
TC4052BP

IC513(1/2)
TC4052BP

IC514(1/2)
TC4052BP

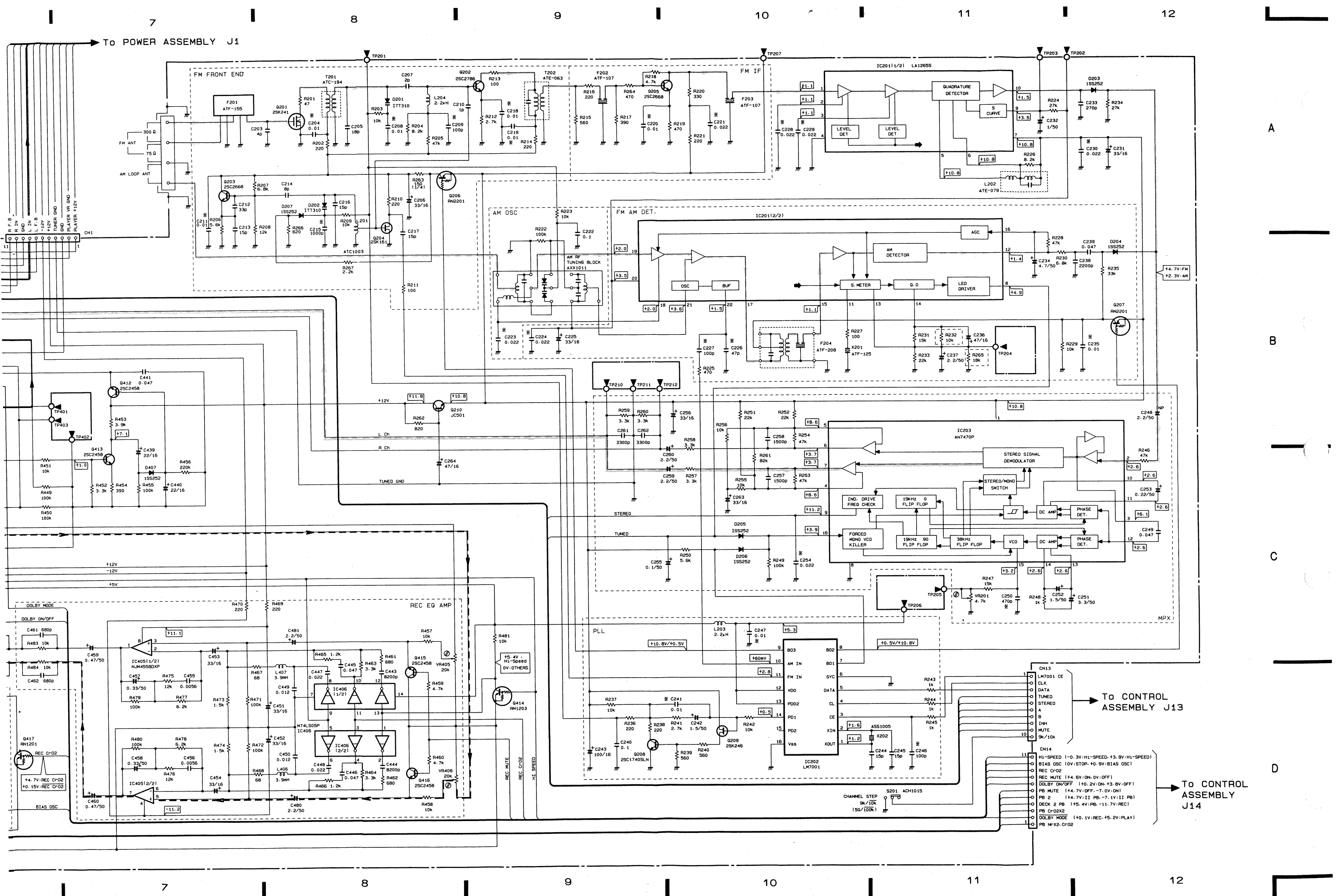
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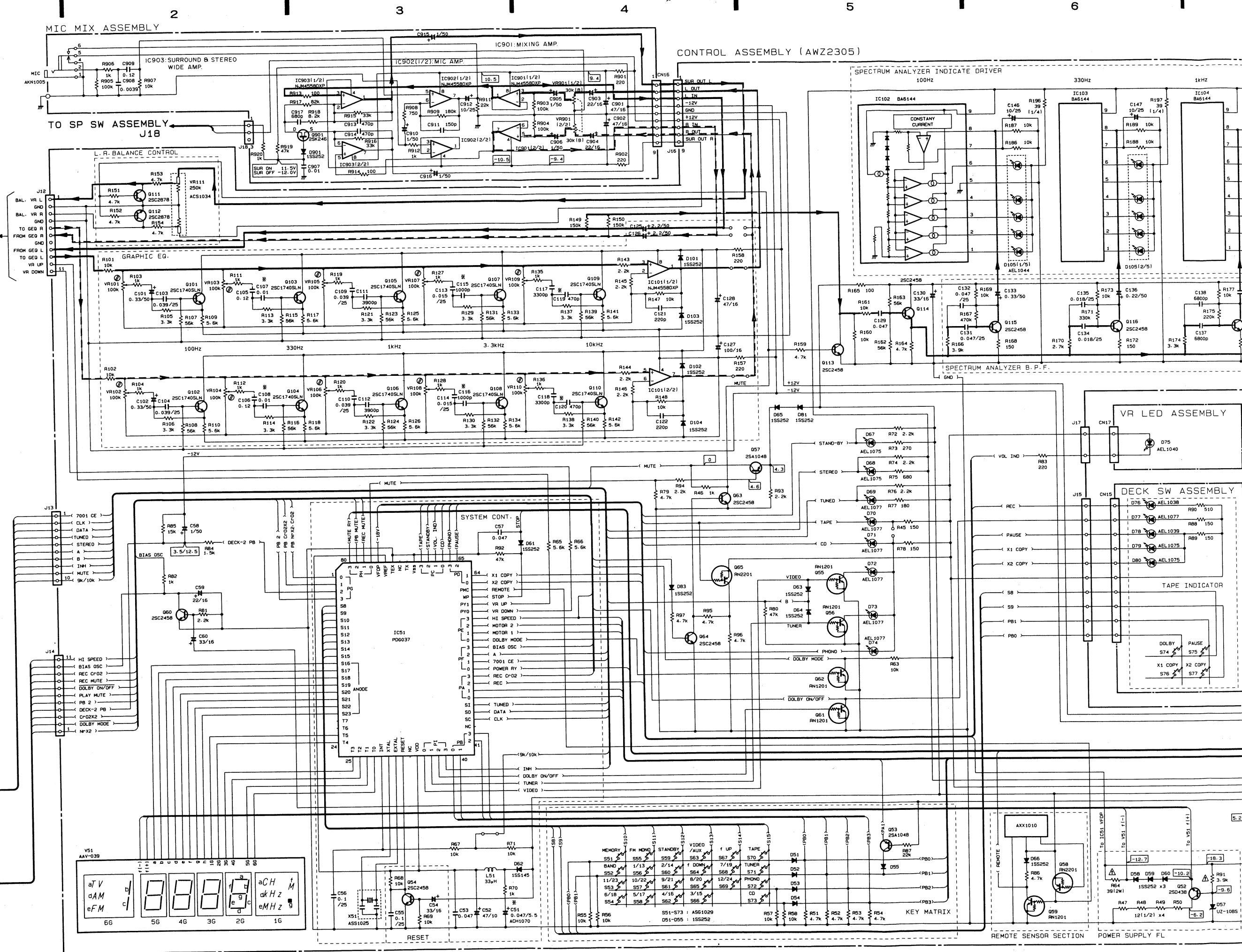
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IC517(1/2)
TC4052BP

IC518(1/2)
TC4052BP

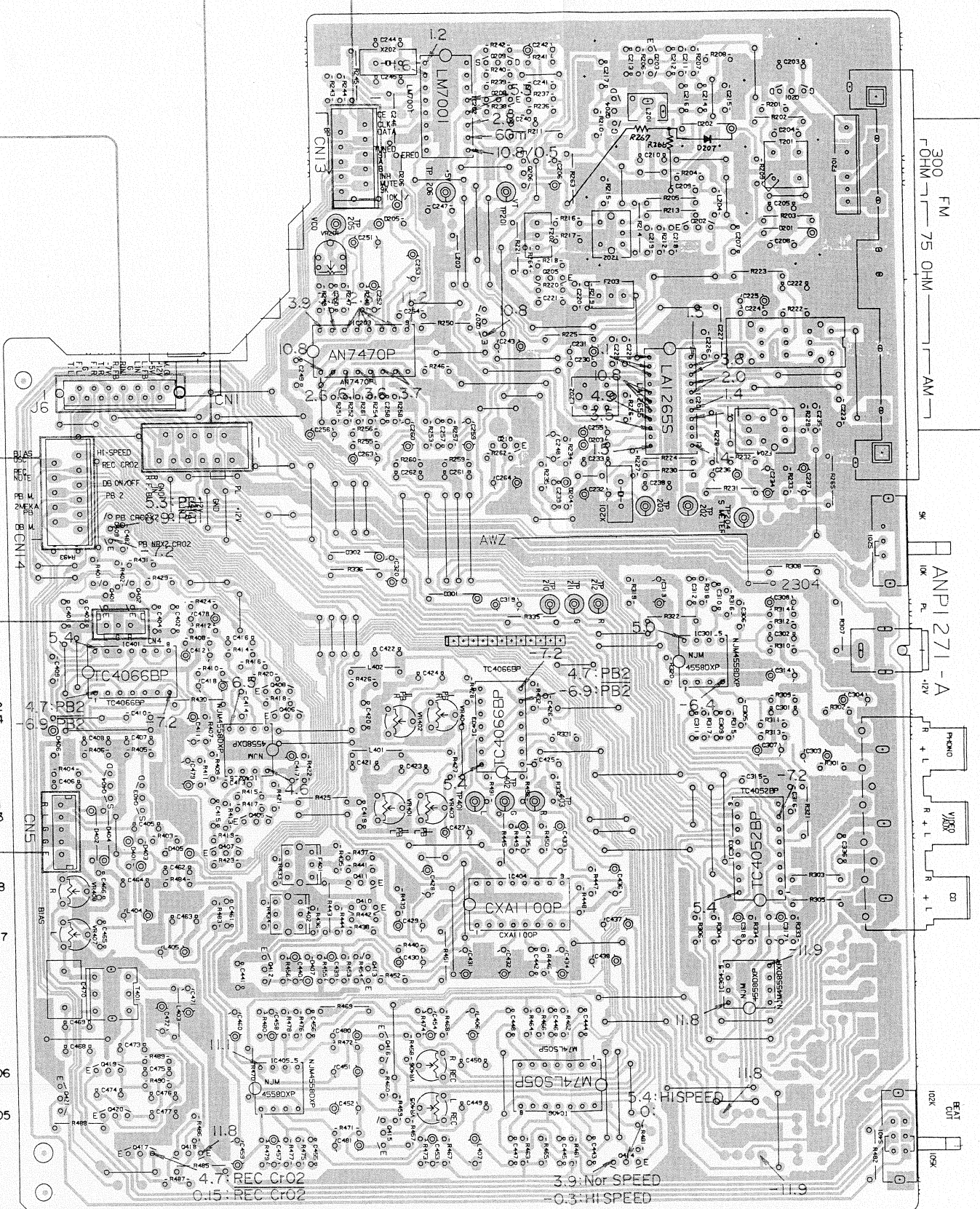
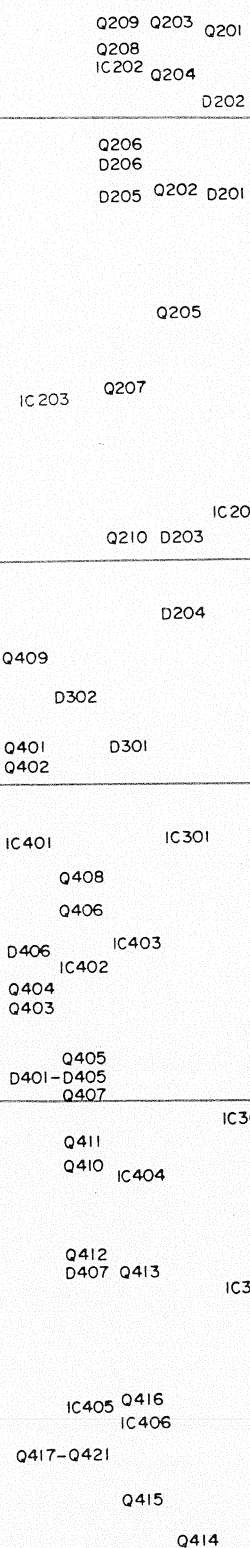
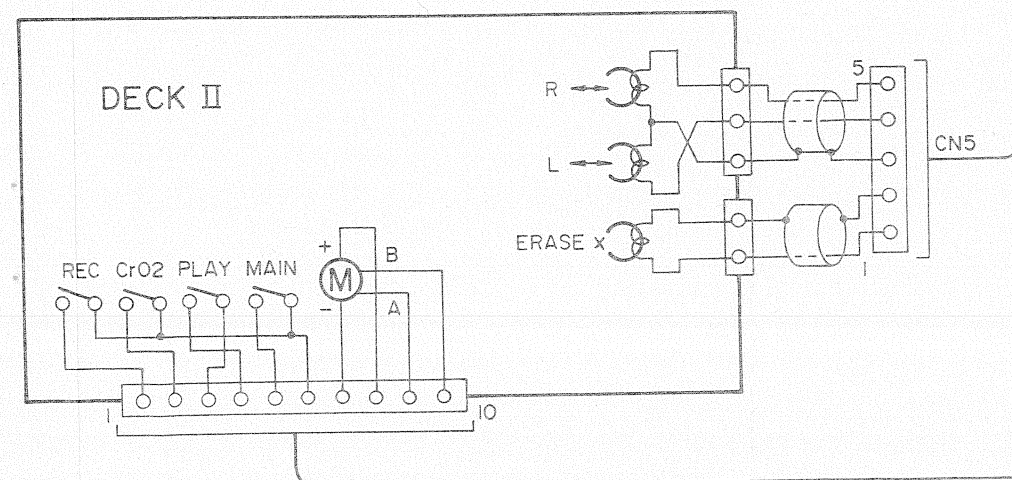
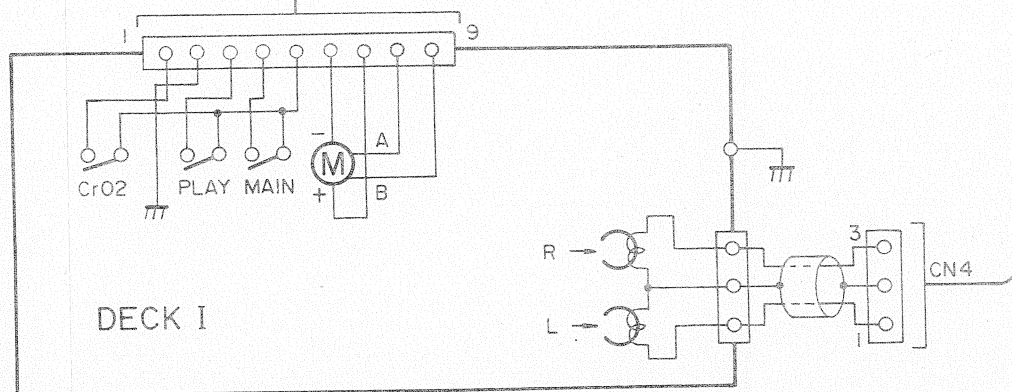
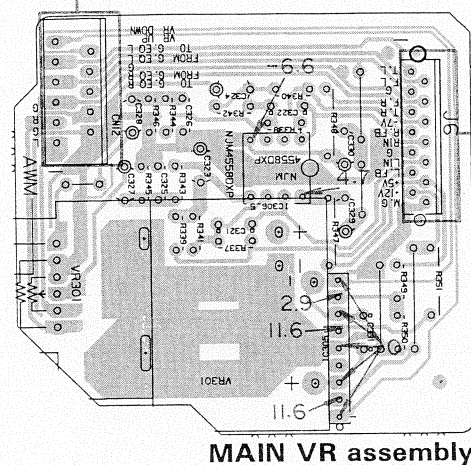
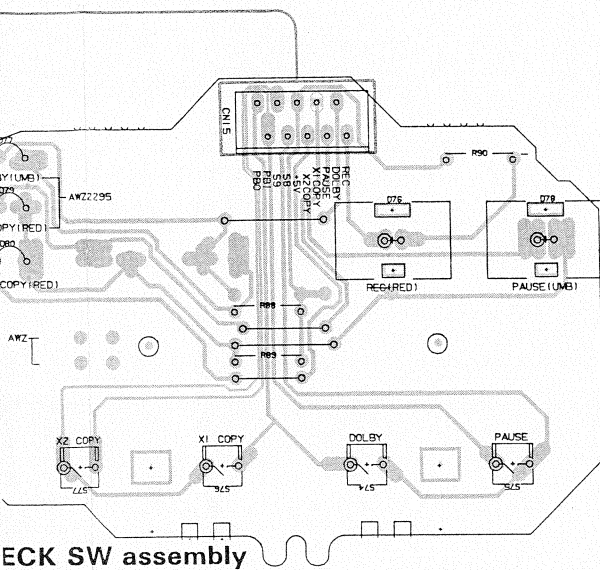
IC519(1/2)
TC4052BP













(c) printed circuit.



C

D.

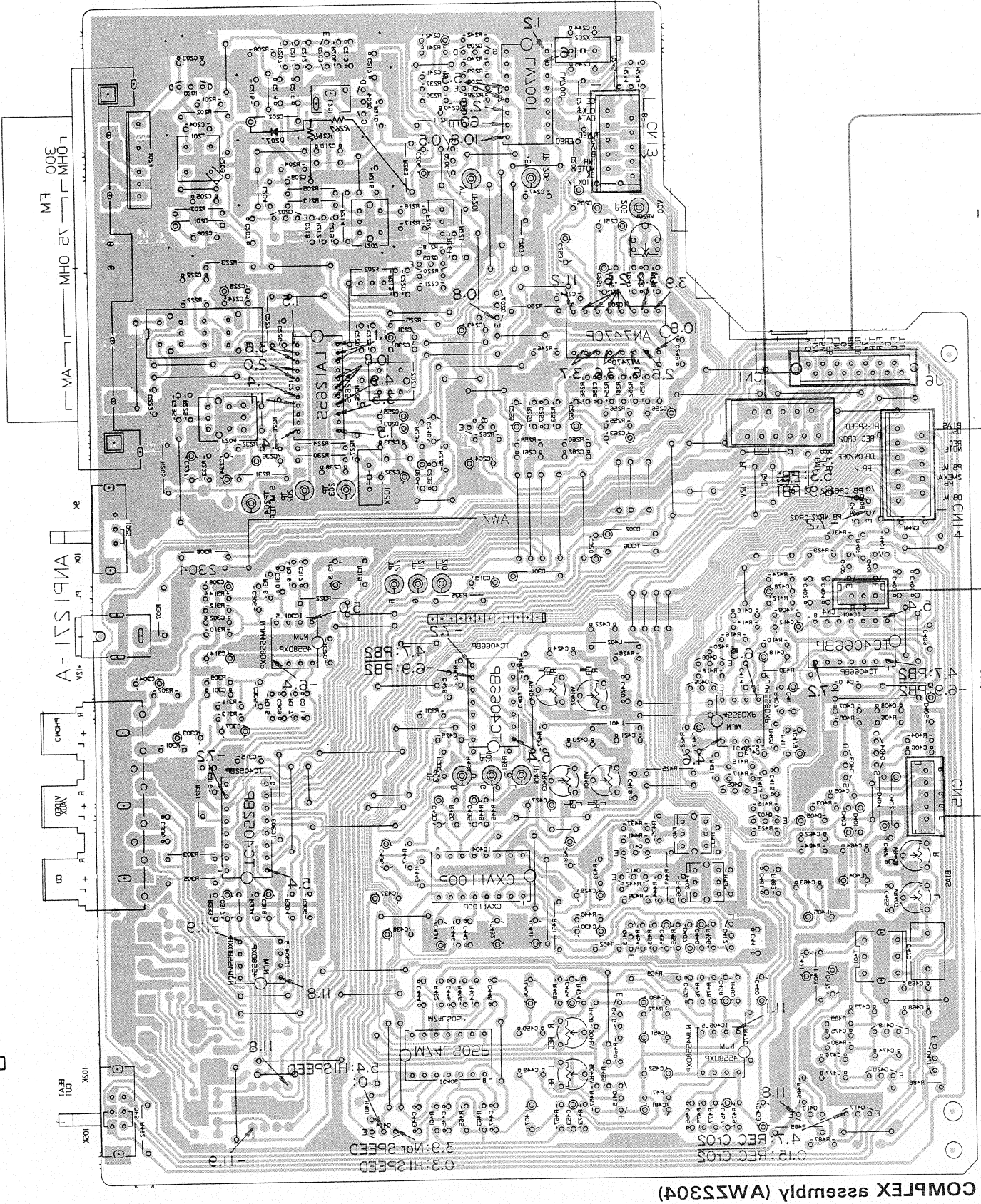
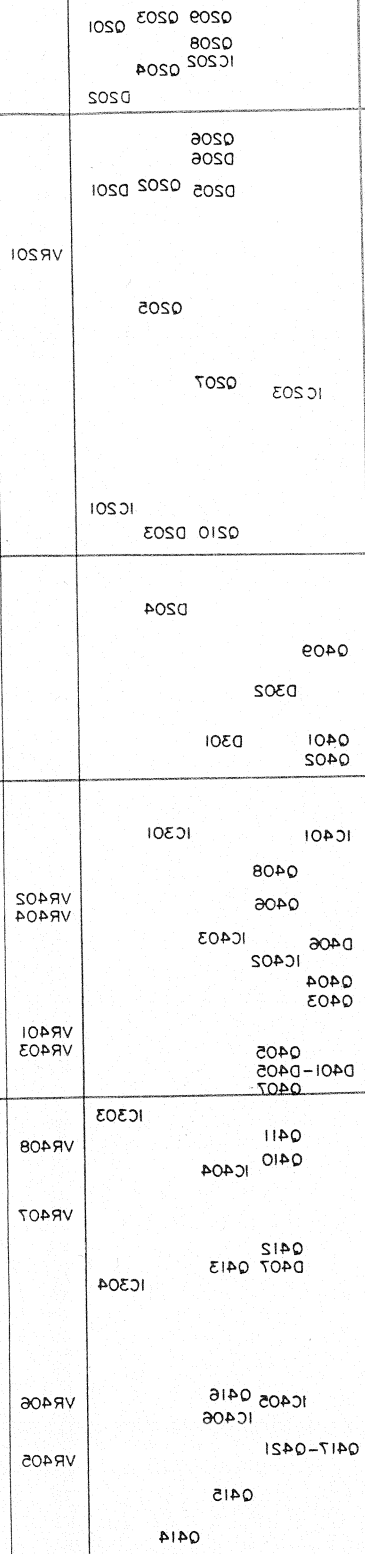
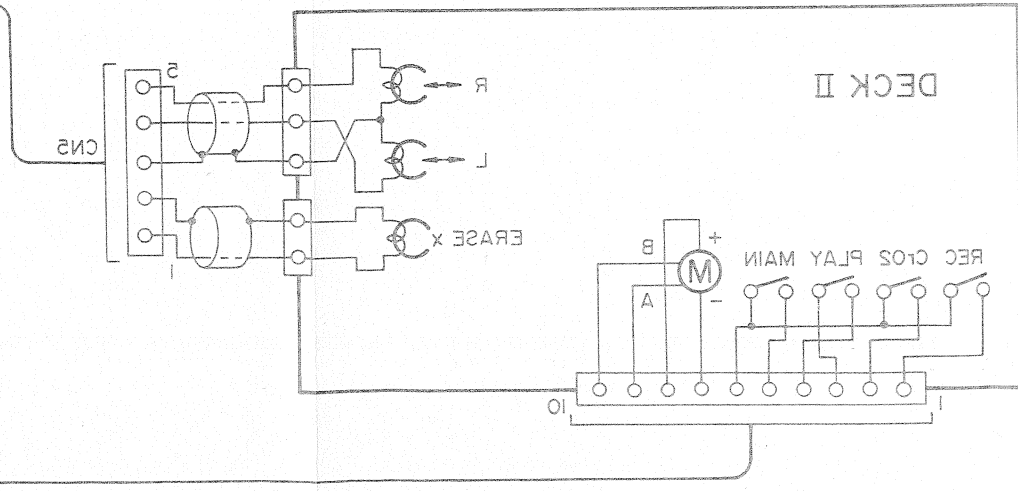
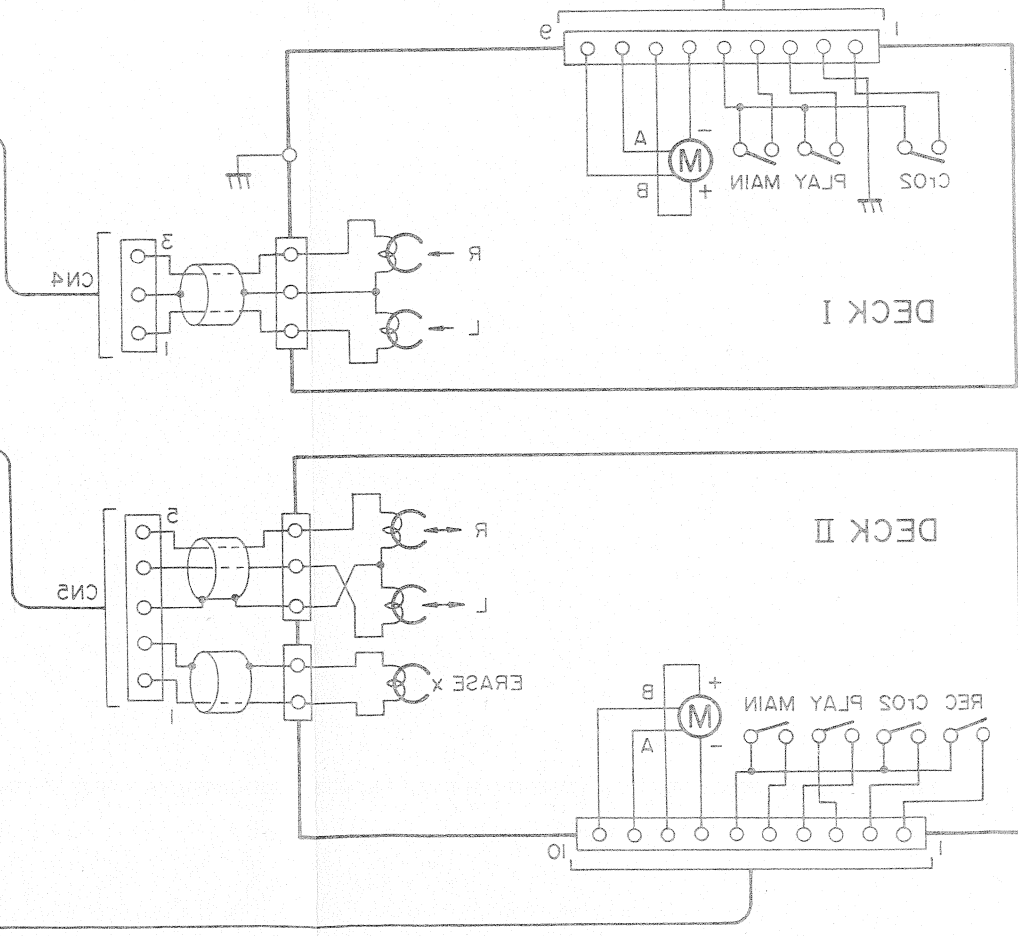
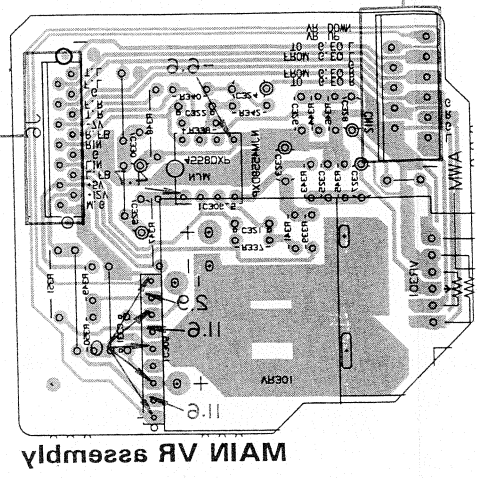
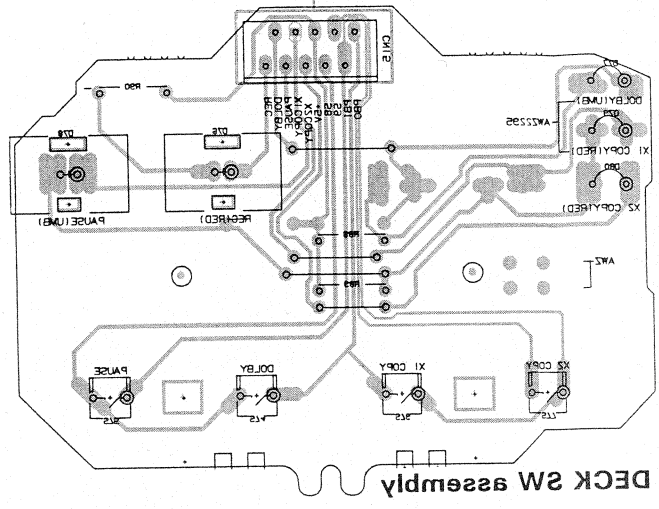


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6. ELECTRICAL PARTS LIST

NOTES:

- Parts without part number cannot be supplied.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.
- The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J = 5%, and K = 10%).

560Ω	56 × 10 ¹	561.....	RD1/4PS	□	□	□	J
47kΩ	47 × 10 ³	473.....	RD1/4PS	□	□	□	J
0.5Ω	0R5	.....	RN2H	□	□	□	K
1Ω	010	.....	RSIP	□	□	□	K

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).
5.62kΩ 562 × 10¹ 5621..... RN1/4SR □ □ □ F

Miscellaneous parts

P.C. BOARD ASSEMBLIES

Mark	Symbol & Description	Part No.	Mark	Symbol & Description	Part No.
	Power assembly	AWZ2303		Mechanism unit (DECK I)	AWY1046
	SP SW assembly			Mechanism unit (DECK II)	AWY1047
	SP Out assembly			Motor assembly	AZX1021
	Connect assembly	AWZ2304		R/P Head	AZP1036
	Complex assembly			E Head	AZP1025
	Main VR assembly	AWZ2305		Main PCB	AZN1571
	Control assembly			Connector	AZN1573
	DECK SW assembly				
	VR LED assembly				
	MIC MIX assembly				

OTHERS

Mark	Symbol & Description	Part No.
⚠	IC701 Regulator IC	UPC7812H
⚠	IC702 Regulator IC	NJM7812FA
⚠	Q3,Q4 Transistor	2SA1302
⚠	Q1,Q2 Transistor	2SC3281
⚠	S1 Line voltage selector switch (AC110V, 120V-127V, 220V, 240V)	AKX-507
⚠	S2 Line voltage selector switch (AC110V-127V, 220V-240V)	AKX1004
⚠	T1 Power transformer	ATS1240
⚠	AC Outlet (1P)	AKP1015
⚠	FU3,FU4 Small type fuse (2A/125V)	AEK-122
⚠	FU1,FU2 Fuse (T3.15A/250V)	AEK-042
⚠	AC Power cord	ADG1016
	Strain relief	AEP-113
	Leaf switch (MOTOR)	AZS1059
	Leaf switch (MUTE)	AZS1060
	Leaf switch (CrO2)	AZS1061
	Leaf switch (REC)	AZS1062

POWER assembly (AWZ2303)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	Q501,Q502	RN1201
	Q505	RN1203
	Q506,Q507,Q615	2SA1048
	Q609,Q610	2SA1306
	Q503,Q504,Q704	2SA1515
	Q601,Q602	2SA970
	Q611,Q612	2SC2240
	Q613,Q614,Q702,Q703	2SC2458
	Q603,Q604	2SC2603
	Q605,Q606	2SC2705
	Q607,Q608	2SC3298
	Q701	2SC3377
	Q616	2SC2235
	D701	D5SB20F
	D617 Zener diode	HZS12BL
	D702-D705,D707	S5566
	D711 Zener diode	UZ-13BS
	D509,D510,D708 Zener diode	UZ-6.2BS
	D501-D508,D601-D616,D618, D619,D706,D709,D710,D712, D713	1SS252

COILS & TRANSFORMER

Mark	Symbol & Description	Part No.
	L601,L602 AF Choke coil	ATH1004
⚠	T701 Power transformer	ATT1041

RELAYS

Mark	Symbol & Description	Part No.
	RY601	ASR-109
	RY701	ASR1024

CAPACITORS

Mark	Symbol & Description	Part No.
⚠	C717,C718 (0.01μF/AC125V)	ACG1003
⚠	C705-C707 (0.01μF/AC150V)	ACG1005
	C605,C606 (47p)	ACG1016
	C701,702 (6800μF/42V)	ACH1019
	C611-614	CCCSL101K500
	C601,C602	CCMSL100D50
	C603,C604	CCMSL680J50
	C615,C616	CEANP010M50
	C623	CEASO10M100
	C710	CEASO10M50
	C714	CEAS100M25
	C708	CEAS102M16
	C704	CEAS102M25
	C709	CEAS330M16
	C703	CEAS332M25
	C618	CEAS4R7M50
	C711,C715,C716	CEAS470M16
	C712,C713	CEAS470M25
	C607,C608	CEAS470M50
	C617	CEAS471M6
	C619-C622	CFTXA823J50
	C609,C610	CKCYB472K50
	C501,C502	CKDYF473Z50

RESISTORS

Mark	Symbol & Description	Part No.
	VR503,VR504 (10k)	VRTM6H103
	VR501,VR502 (50k)	VRTM6H503
⚠	R629,R630 (0.22 × 2, 5W)	ACN-146
⚠	R649,R650,R716	RD1/2PMF□□□J
⚠	R631-R634,R701,R703,R712	RD1/4PMF□□□J
	R601,R602,R605-R612, R619-R624,R635-R641,R643, R644	RD1/4PM□□□J
⚠	R603,R604	RFA1/4PS471J
⚠	R625-R628,R647,R648	RFA1/4PS□□□J
⚠	R646	RS2LMF681J
⚠	R714	RS2LMF330J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	CN10 10P Connector	KPE10
	CN11 9P Connector	KPE9

SP SW assembly

SWITCH

Mark	Symbol & Description	Part No.
	S601 Push switch (SPEAKERS)	SULLYS

RESISTORS

Mark	Symbol & Description	Part No.
	R651,R652	RS1LMF471J

OTHERS

Mark	Symbol & Description	Part No.
	Jack (HEAD PHONE)	AKN1010
	CN8 6P Connector	KPC6

SP OUT assembly

OTHERS

Mark	Symbol & Description	Part No.
	Terminal 8P (SPEAKER)	AKE-111
	Mini jack (REMOTE OUT)	AKN-207

CONNECT assembly

No parts are supplied with the CONNECT assembly.

COMPLEX assembly (AWZ2304)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC203	AN7470P
	IC404	CXA1100P
	IC201	LA1265S
	IC202	LM7001
	IC406	M74LS05P
	IC301,IC304,IC402,IC405	NJM4558DXP
	IC303	TC4052BP
	IC401,IC403	TC4066BP
	Q210	JC501
	Q417	RN1201
	Q409,Q414	RN1203
	Q206,Q207	RN2201
	Q418	2SA1048
	Q208	2SC1740SLN
	Q401,Q402,Q405-Q408, Q410-Q413,Q415,Q416,Q421	2SC2458
	Q203,Q205	2SC2668
	Q202	2SC2786

Mark	Symbol & Description	Part No.
	Q419,Q420	2SC3377
	Q204	2SK161
	Q201	2SK241
	Q209	2SK246
	Q403,Q404	2SK373
	D201,D202	ITT310
	D301 Zener diode	UZ-5.1BS
	D302 Zener diode	UZ-7.5BS
	D203-D207,D401-D407	1SS252

COILS & TRANSFORMERS

Mark	Symbol & Description	Part No.
	T201 FM RF transformer	ATC-194
	T202 FM Coupling transformer	ATE-063
	T401 Bias OSC transformer	ATX1007
	L201 FM Coil	ATC1003
	L202 FM Detector coil	ATE-079
	L203,L204 Axial inductor (2.2μH)	LAU2R2M
	L403 Axial inductor (22μH)	LAU220K
	L401,L402 Axial inductor (220μH)	LAU221K
	L406,L407 Inductor (3.9mH)	LTA392J
	L404,L405 Inductor (8.2mH)	LTA822J
	F202,F203 FM Ceramic filter	ATF-107
	F201 FM Band pass filter	ATF-155
	F204 AM Ceramic filter	ATF-208
	F401,F402 Dolby filter	ATF-210

SWITCH

Mark	Symbol & Description	Part No.
	S401 Slide switch (BEAT CUT)	ASH1033
	S201 Slide switch (GEQ ON/OFF)	ASH1015

CAPACITORS

Mark	Symbol & Description	Part No.
	C470 (560p/630)	ACE1021
	C250 (470p)	ACE1039
	C226 (47p)	ACG1016
	C209,C227,C246,C305,C306, C413,C414,C482 (100p)	ACG1017
	C215 (1000p)	ACG1020
	C204,C208,C211,C218-C220, C235,C241,C247,C315,C316, C409,C410,C425,C426 (0.01μF)	ACG1021
	C221,C223,C224,C228-C230, C254 (0.022μF)	ACG1022
	C465,C466	CCCSL101K500
	C401-C404	CCCSL181J50
	C463,C464	CCCSL271K500
	C210	CCDCH010C50
	C207	CCDCH020C50

Mark	Symbol & Description	Part No.
	C205	CCDRH180J50
	C477	CCDSL221J50
	C233	CCDSL271J50
	C216	CCDTH150J50
	C203	CCMCH040C50
	C214	CCMCH080D50
	C213,C217,C244,C245	CCMCH150J50
	C212	CCMCH330J50
	C405,C406	CCMSL100D50
	C248	CEANP2R2M50

	C253	CEASR22M50
	C457,C458	CEASR33M50
	C459,C460	CEASR47M50
	C433,C434	CEASR68M50
	C255	CEASOR1M50

	C232,C411,C412	CEAS010M50
	C242,C252	CEAS1R5M50
	C243,C432	CEAS101M16
	C237,C259,C260,C303,C304, C317,C318,C427-C430, C435-C438,C480,C481	CEAS2R2M50

	C439,C440	CEAS220M16
	C251	CEAS3R3M50
	C206,C225,C231,C256,C263, C313,C314,C451-C454,C478, C479	CEAS330M16

	C234	CEAS4R7M50
	C236,C264,C307,C308,C319, C320,C417,C418,C431,C471, C472	CEAS470M16
	C421,C422	CFTXA103J50

	C222,C240,C423,C424	CFTXA104J50
	C449,C450	CFTXA123J50
	C473	CFTXA153J50
	C447,C448	CFTXA223J50
	C445,C446	CFTXA473J50

	C468	CKCYB182K50
	C469	CKCYB222K500
	C475,C476	CKCYB472K50
	C474	CKCYB682K50
	C311,C312,C443,C444	CKCYB822K50

	C261,C262	CKCYB332K50
	C249,C336,C441	CKCYF473Z50
	C419,C420	CKCYX333M25
	C238,C309,C310	CKDYB222K50
	C239,C442	CKDYF473Z50

	C257,C258	CKMYB152K50
	C301,C302,C407,C408	CKMYB391K50
	C461,C462	CKMYB681K50
	C455,C456	CQMA562K50
	C415,C416	CQMA682J50

RESISTORS

Mark	Symbol & Description	Part No.
	VR201 (4.7k)	ACP1024
	VR401-VR404 (10k)	VRTM6V103
	VR405,VR406 (20k)	VRTM6V203
	VR407,VR408 (500k)	VRTM6V504
	R307,R308	RD1/2PMF100J
	R335,R482,R485	RD1/2PM□□□J
	R263,R336	RD1/4PM□□□J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	Terminal 4P (ANTENNA)	AKA1009
	6P Pin jack (PHONO,VIDEO/ AUX,CD)	AKB1023
	DC Jack (PLAYER +12V)	AKN-203
	CN13 10P Connector	KPE10
	CN1,CN14 11P Connector	KPE11
	AM RF Tuning block	AXX1011
	X202 Crystal resonator (7.200MHz)	ASS1005
	X201 Ceramic resonator (450kHz)	ATF-125

MAIN VR assembly
SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC306	NJM4558DXP
	IC305	TA7291S

CAPACITORS

Mark	Symbol & Description	Part No.
	C325,C326 (47p)	ACG1016
	C321,C322	CKMYB271K50
	C327,C328	CEAS2R2M50
	C323,C324	CEAS221M10
	C329,C330	CEAS470M16
	C331	CKCYF473Z50

RESISTORS

Mark	Symbol & Description	Part No.
	VR301 (100k × 2) Variable resistor with motor	ACX1023
	R351	RD1/2PM330J
	Others resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	CN12 11P Connector	KPE11

CONTROL assembly (AWZ2305)

SEMICONDUCTORS

Mark	Symbol & Description	Part No.
	IC102-IC106	BA6144
	IC101	NJM4558DXP
	IC51	PDG037
	Q55,Q56,Q59,Q61,Q62	RN1201
	Q58,Q65	RN2201
	Q53,Q57	2SA1048
	Q51,Q54,Q60,Q63,Q64, Q113-Q119	2SC2458
	Q101-Q110	2SC1740SLN
	Q111,Q112	2SC2878
	Q52	2SD438

	D105 LED assembly	AEL1044
	D67,D68 LED	AEL1075
	D69-D74 LED	AEL1077
	D57 Zener diode	UZ-10BS
	D56 Zener diode	UZ-5.6BS

	D62	1SS145
	D51-D55,D58-D61,D63-D66, D81,D83,D101-D104	1SS252

SWITCHES

Mark	Symbol & Description	Part No.
	S51-S73 Tact switch	ASG1029

COIL

Mark	Symbol & Description	Part No.
	L51 Axial inductor (33μH)	LAU330K

CAPACITORS

Mark	Symbol & Description	Part No.
	C119,C120 (470p)	ACG1019
	C115,C116 (1000p)	ACG1020
	C107,C108 (0.01μF)	ACG1021
	C142 (0.022μF)	ACG1022
	C51 (0.047F/5.5)	ACH1070
	C136	CEASR22M50
	C101,C102,C133	CEASR33M50
	C58	CEASO10M50
	C146-C150	CEAS100M25
	C127	CEAS101M16
	C125,C126	CEAS2R2M50
	C59	CEAS220M16
	C54,C60,C130	CEAS330M16
	C52	CEAS470M10
	C128	CEAS470M16
	C105,C106	CFTXA124J50
	C140,C141	CKCYB272K50
	C145	CKCYB332K50
	C137,C138	CKCYB682K50
	C143,C144	CKCYB821K50

Mark	Symbol & Description	Part No.
	C53,C57,C129 C134,C135 C139 C131,C132 C117,C118	CKCYF473Z50 CKCYX183M25 CKCYX333M25 CKCYX473M25 CKDYB332K50
	C111,C112 C55,C56 C113,C114 C103,C104,C109,C110 C121,C122	CKDYB392K50 CKDYX104M25 CKDYX153M25 CKDYX393M25 CKMYB221K50

RESISTORS

Mark	Symbol & Description	Part No.
	VR111 (250k × 2 – B) VR101 – VR110 (100k)	ACS1034 ACU1032
	R47 – R50 R59,R60,R100,R196 – R199 R64	RD1/2PMFL120J RD1/4PM□□□J RS2LMF390J
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	V51 Fluorescent indicator tube	AAV – 039
	2P Wire assembly	ADX1190
	Remote control reception unit assembly	AXX1010
	X51 Ceramic resonator	ASS1025

**DECK SW assembly
SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
	D76 LED assembly D78 LED assembly D79,D80 LED D77 LED	AEL1038 AEL1039 AEL1075 AEL1077

SWITCHES

Mark	Symbol & Description	Part No.
	S74 – S77 Tact switch	ASG1029

RESISTORS

Mark	Symbol & Description	Part No.
	All resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	CN15 10P connector	KPE10

**VR LED assembly
SEMICONDUCTOR**

Mark	Symbol & Description	Part No.
	D75 LED assembly	AEL1040

**MIC MIX assembly
SEMICONDUCTORS**

Mark	Symbol & Description	Part No.
	IC901,IC902,IC903	NJM4558DXP
	Q901	2SK246
	D901	1SS252

CAPACITORS

Mark	Symbol & Description	Part No.
	C911 C905,C906,C910,C915,C916 C912 C903,C904 C901,C902	CCCSL151J50 CEAS010M50 CEAS100M25 CEAS220M16 CEAS470M16
	C909 C908 C907 C913,C914 C917	CFTXA124J50 CKCYB392K50 CKCYF103Z50 CKMYB471K50 CKMYB681K50

RESISTORS

Mark	Symbol & Description	Part No.
	VR901 (30k)	ACS1006
	Other resistors	RD1/8PM□□□J

OTHERS

Mark	Symbol & Description	Part No.
	CN16 9P connector Mic jack	KPE9 AKN1005

7. ADJUSTMENTS

7.1 TAPE DECK SECTION

7.1.1 Mechanical adjustments

• Adjustment points are as shown in Fig. 7-1

1. Connect the frequency counter to the TP401 terminal (Dolby TP: Lch) on the complex assembly.
2. Set the FUNCTION to TAPE position.
3. Mount the test tape STD-301 onto deck I.
4. Short circuit between terminals TP14 and TP15 on the POWER assembly and put the deck I into play mode. (STD-301 is play backed in double speed.)
5. Adjust with VR503 so that the playback signal frequency of deck I becomes $6020\text{Hz} \pm 20\text{Hz}$.
6. Release the short circuit between terminals TP14 and TP15.
7. Put the deck I into play mode and adjust with VR501 so that the playback signal frequency becomes $3010\text{Hz} \pm 10\text{Hz}$.
(Note 1: Be sure not to turn VR503 while performing the normal speed adjustment.)
(Note 2: Be sure to first perform double speed adjustment in both Decks I and II.)
8. At this point, be sure to confirm that wow and flutter are within 0.3% both in the double and normal speeds.

9. Mount the test tape STD-301 onto deck II.
10. Short circuit between terminals TP14 and TP15 on the POWER assembly and put the deck II into play mode. (STD-301 is play backed in double speed.)
11. Adjust with VR504 so that the playback signal frequency of deck II becomes $6020\text{Hz} \pm 20\text{Hz}$ against that of deck I.
12. Release the short-circuit between terminals TP14 and TP15.
13. Put the deck II into play mode and adjust with VR502 so that the playback signal frequency of deck II becomes $3010\text{Hz} \pm 10\text{Hz}$ against that of deck I.
(Note: Be sure not to turn VR504 while performing the normal speed adjustment.)
14. At this point, be sure to confirm that the wow and flutter within 0.3% both in the double and normal speeds.

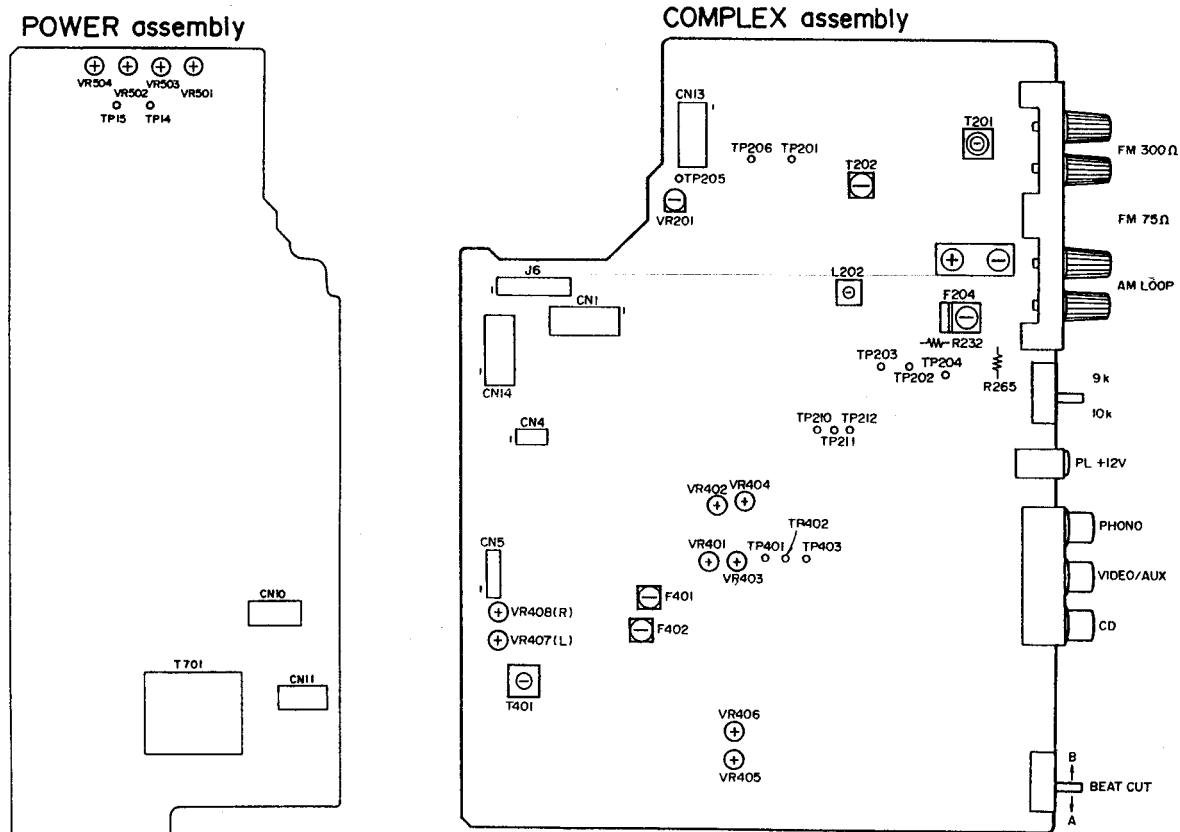


Fig. 7-1 Adjustment points

7.1.2 Electrical adjustments

Adjustment Conditions

1. The mechanical adjustments must be completed first.
2. The head must be cleaned and demagnetized.
3. Turn power on allow the deck to warm up for at least a few minutes before commencing any electrical adjustments.
4. The reference signal is 0dBv = 1Vrms.
5. Unless otherwise specified, the switches listed below are left in the positions indicated.
DOLBY NR :OFF
TAPE SELECTOR :NORM

List of Adjustments

PLAYBACK SECTION

1. Head azimuth adjustment.
2. Playback level adjustment.

RECORDING SECTION

1. Recording sections
2. Recording level adjustment.

NOTE: This unit has an automatic tape selection feature.

Test Tapes

STD-331B	:Playback adjustments (See Fig. 7-2)
STD-630	:NORMAL blank tape
STD-620	:CrO ₂ blank tape
STD-610	:METAL blank tape

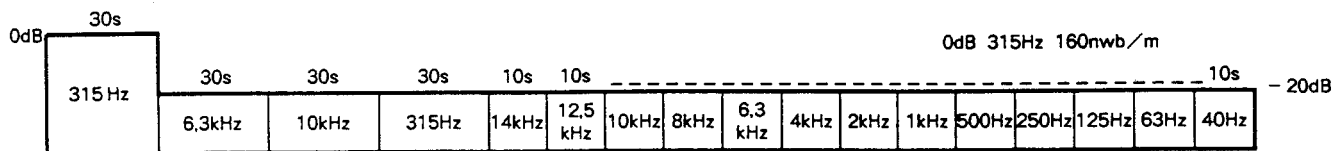


Fig. 7-2 Constants of the test tape STD-331B

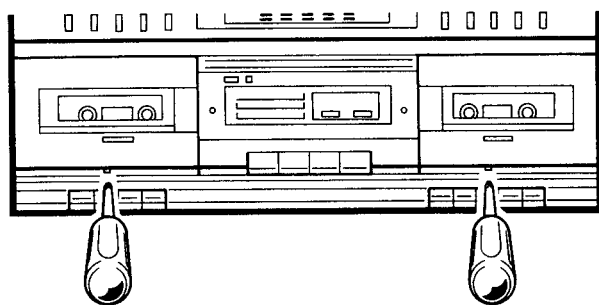
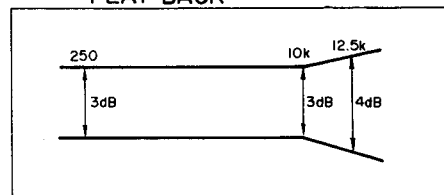


Fig. 7-3 Head azimuth adjustment

PLAY BACK



RECORDING

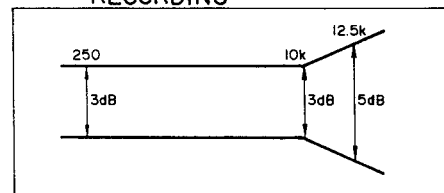


Fig. 7-4 Frequency response

DECK I, II (PLAYBACK SECTION)

1. Head Azimuth Adjustment

- Turn VR403, VR404 (Deck I) or VR401, VR402 (Deck II) to mechanical center positions.

NO	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 10kHz/−20dB section of STD-331B test tape.	Head azimuth adjustment screw. (See Fig. 7-3)	TP401 (L) TP403 (R)	Maximum playback signal level.	
2.	STOP	Lock the screw with screw lock after completing adjustment.				

2. Playback level Adjustment

- This adjustment determines the DOLBY NR level, and must be performed with great care.

NO	Mode	Input signal & test tape	Adjustment location		Measuring location	Adjustment value	Remarks
1.	PLAY	Play the 315Hz/0dB section of the STD-331B test tape.	Deck I	VR403 (Lch) VR404 (Rch)	TP.401 (Lch) TP.402 (Rch)	−5.2 dBv ±0.5 dBv	Adjust the playback level first at DECK I, and then at DECK II.
			Deck II	VR401 (Lch) VR402 (Rch)			

DECK II (RECORDING SECTION)

1. Recording Bias Adjustment

- Set the BEATCUT switch to the A position

- After the adjustment, caution should be exercised so as not to become under bias by checking the distortion rate.

NO	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC	STD-630 (NORM) −20dB	VR407 (Lch) VR408 (Rch)	TP401 (Lch) TP403 (Rch)	0dB ±0.5dB (10kHz/315Hz)	

2. Recording Level Adjustment

- Set the FUNCTION to the CD position

NO	Mode	Input signal & test tape	Adjustment location	Measuring location	Adjustment value	Remarks
1.	REC PAUSE	Apply a 315Hz/0dBv signal to the CD input terminals.	Input signal level	TP.401 (Lch) TP.402 (Rch)	−5.2 dBv	
2.		Set the DOLBY NR switch to the ON position. (DOLBY B)				
3.	REC/PLAY	Record the above signal on to the STD-630 test tape, and playback.	VR405 (Lch) VR406 (Lch)	TP.401 (Lch) TP.402 (Rch)	−5.2dBv ±0.5dB	
4.	REC/PLAY	Record the above signal on to the STD-620 test tape, and playback.	Confirm	TP.401 (Lch) TP.402 (Rch)	−4.5dBV ±2dB	

7.2 TUNER SECTION

FM Tuner Adjustment

- Adjustment point are as shown in Fig. 7-1
- Make the wire connections as shown in Fig. 7-5
- Set the function to FM

FM MONO

Step	Item	Adjustment location	Measuring location	Adjustment value	Conditions
1	Sensitivity adjustment	T201	TP210 TP212	Max. voltage	Level at which the standard modulation of 98MHz does not saturate voltage of TP3
2	Tuning voltage check at 87.5 MHz	—	TP201	$3.5V \pm 1.5V$	—
3	Tuning voltage check at 108 MHz	—	TP201	$8.7V +1.3V$ $-2V$	—
4	(T METER adjustment)	L202	TP202 TP203	Voltage 0V difference $\pm 10mV$	Standard modulation at 98MHz 60dB
5	Confirmation TUNED IND lighting	※ R265	TUNED IND lighting	$45dB\mu V/m$ or less	Standard modulation at 98MHz

Note ※ : Separate the R265 if out of specification.

FM STEREO

6	MPX VCO Adjustment	VR201	TP205	$76kHz \pm 100Hz$	Non modulation at 98MHz $80dB\mu V$
7	Confirmation of distortion factor check	—	TP210, TP212	1.5% or less	Stereo modulation at 98MHz $60dB\mu V$
8	Distortion factor adjustment	T202	TP210, TP212	Min. distortion	Stereo modulation at 98MHz $60dB\mu V$

※ Perform the above adjustment only when the distortion factor check exceeds 1.5%.

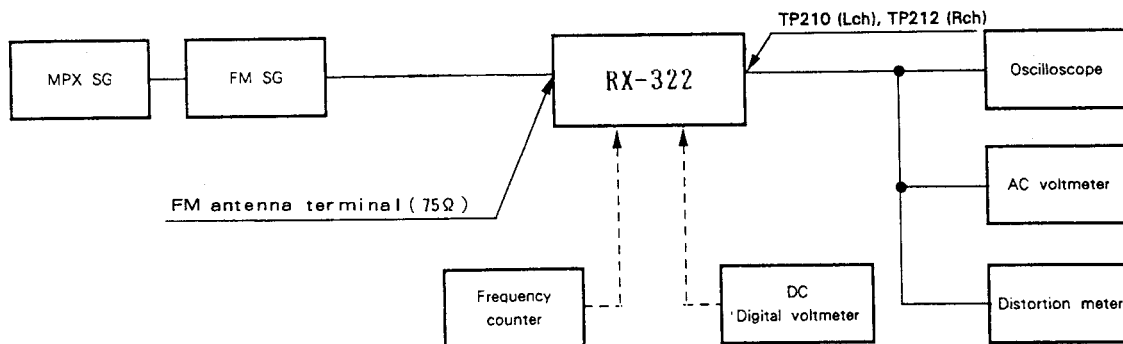


Fig. 7-5 FM adjustment wiring diagram

7.2.3 AM Tuner Adjustment

- Adjustment point are as shown in Fig. 7-1
- Make the wire connections as shown in Fig. 7-6
- Set the function to AM

AM

Item	Adjustment location	Measuring location	Adjustment value	Conditions
Confirmation TUNED IND lighting	※ R232	TUNED IND lighting	60dB μ V/m or less	Standard modulation at 1000 kHz.

Note ※ : Separate the R232 if out of specification.

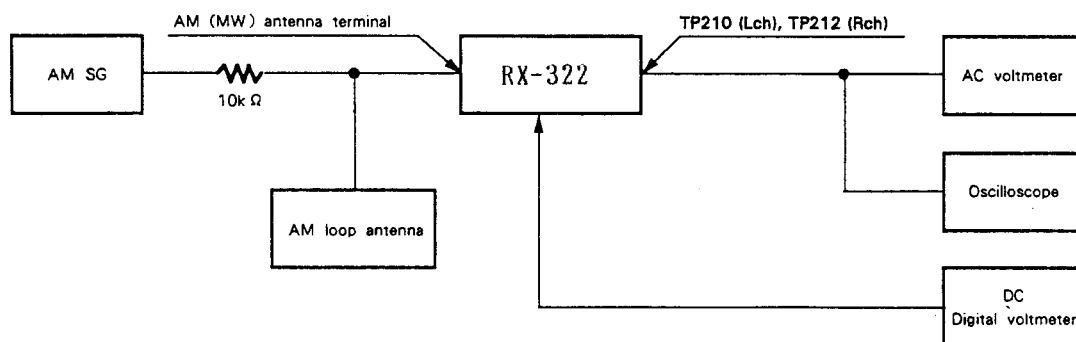
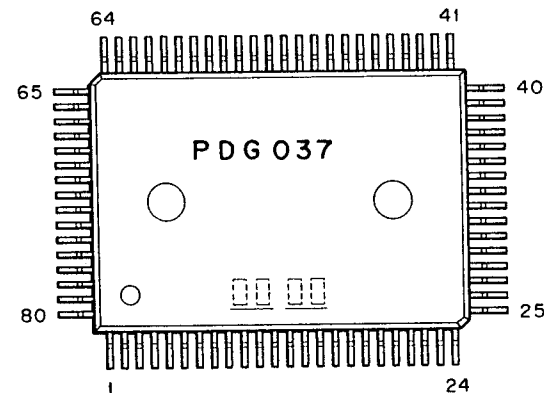


Fig. 7-6 AM adjustment wiring diagram

8. IC INFORMATION

<PDG037> SYSTEM CONTROL MICROCOMPUTER



1. Terminal Functions

No.	Name	I/O	P style	Function	LOGIC
1	S4/PG0	O	P	PB Nr × 2, CrO ₂	H: CrO ₂ playback or high speed copy with tape transport unit 1=normal
2	S5/PG1	O	P	PB CrO ₂ × 2	H: high speed copy with tape transport unit 1=CrO ₂
3	S6/PG2	O	P	tape transport unit 2	L: tape transport unit 2=REC
4	S7/PG3	O	P	PLAY/REC	H: tape transport unit 2=PLAY
				PLAY selection from tape transport units 1 and 2	L: tape transport unit 1=PLAY H: tape transport unit 2=PLAY
5	S8	O	P	Key output	
6	S9	O	P	Key output	
7	S10	O	P	Key output	
8	S11	O	P	Key output	
9	S12	O	P	Key output	
10	S13	O	P	Key output	
11	S14	O	P	Key output	
12	S15	O	P	Key output	
13	S16/T15	O	DP	FL segment a	
14	S17/T14	O	DP	FL segment b	
15	S18/T13	O	DP	FL segment c	
16	S19/T12	O	DP	FL segment d	
17	S20/T11	O	DP	FL segment e	
18	S21/T10	O	DP	FL segment f	
19	S22/T9	O	DP	FL segment g	
20	S23/T8	O	DP	FL segment h	
21	T7	O	DP	Unused (open)	
22	T6	O	DP	Unused (open)	
23	T5	O	DP	FL grid 1	
24	T4	O	DP	FL grid 2	
25	T3	O	DP	FL grid 3	
26	T2	O	DP	FL grid 4	
27	T1	O	DP	FL grid 5	
28	T0	O	DP	FL grid 6	
29	INT	I	C	switchover	L: MW9kHz, FM50kHz H: MW10kHz, FM100kHz
30	XTAL	O	C	Clock pulse output	
31	EXTAL	I	C	Clock pulse input	
32	RST	I	C	Reset	L: Reset
33	NC				
34	V _{DD}	I		Supply voltage	
35	PI0/AD0	O	C	VIDEO	H: FUNC=VIDEO
36	PI1/AD1	O	C	TUNER	H: FUNC=TUNER
37	PI2/AD2	O	C	DOLBY IND	H: DOLBY IND light up = DOLBY ON
38	PI3/AD3	O	C	SW INH	H: Scanning in progress with FUNC=TAPE or FUNC=TUNER
39	PB0/AD4	I	C	Key input 0	
40	PB1/AD5	I	C	Key input 1	

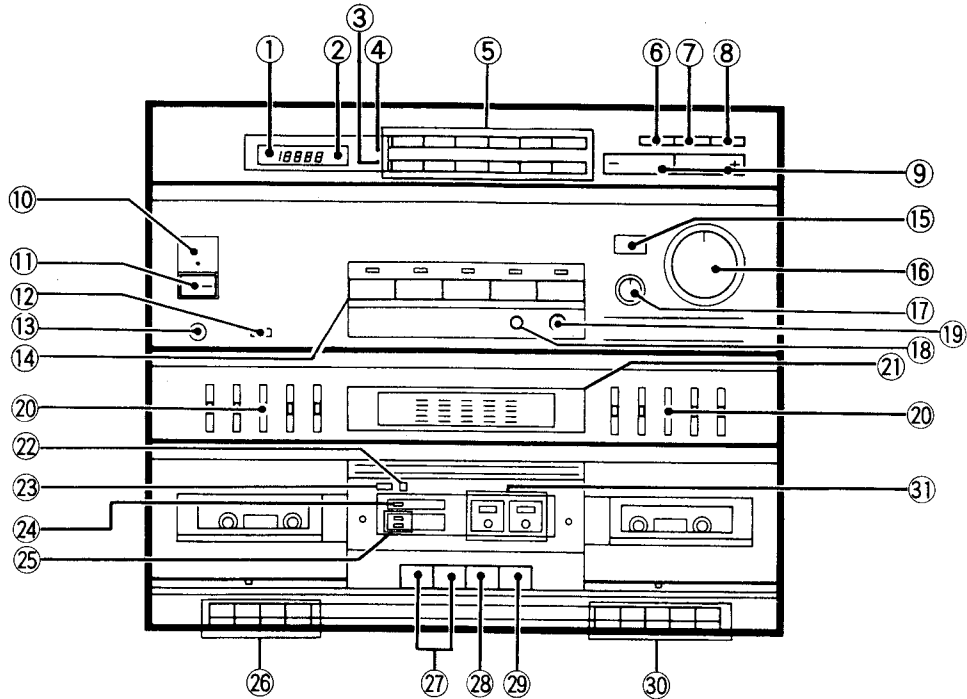
No.	Name	I/O	P style	Function	LOGIC
41	PB2/AD6	I	C	Key input 2	
42	PB3/AD7	I	C	Key input 3	
43	NC				
44	PX0/SC	O	C	Serial clock pulse output	
45	PX1/SO	O	C	Serial data output	
46	PX2/SI	I	C	Auto stop input	L: Auto tuning stop
47	PA0	O	C	Deck SW output 0	
48	PA1	O	C	Deck SW output 1	
49	PA2	O	C	REC IND	L: REC IND light up
50	PA3	O	C	REC CrO ₂	H: Tape transport unit 2 = CrO ₂
51	PF0	O	C	POWER Relay	H: Relay ON
52	PF1	O	C	LM7001 CE	H: Enable .
53	PF2	O	C	Function SW control A	H: FUNC = PHONO or FUNC = TUNER
54	PF3	O	C	BIAS OSC	H: ON = BIAS OSC
55	PE0	O	C	DOLBY MODE	L: DOLBY ON
56	PE1	O	C	MOTOR 1	H: tape transport unit 1 MOTOR ON
57	PE2	O	C	MOTOR 2	H: tape transport unit 2 MOTOR ON
58	PE3	O	C	TAPE SPEED	L: High speed copy in progress
59	PY0	O	C	VOLUME DOWN	H: Motor volume DOWN
60	PY1/PWM	O	C	VOLUME UP	H: Motor volume UP
61	PY2/WP	I	C	Power failure detection	
62	PY3/EC/RMC	I	C	Remote control signal input	
63	PD0	O	C	×2 COPY IND.	L: ×2 COPY IND light up
64	PD1	O	C	×1 COPY IND.	L: ON = ×1 COPY IND light up
65	PD2	O	C	PAUSE IND.	L: PAUSE IND light up
66	PD3	O	C	PHONO	L: FUNC = PHONO
67	PC0	O	C	CD	L: FUNC = CD
68	PC1	O	C	VOLUME IND.	L: VOLUME IND light up
69	PC2	O	C	STANDBY IND.	L: STANDBY IND light up
70	PC3	O	C	TAPE	L: FUNC = TAPE
71	V _{SS}	I		GND terminal	
72	TX	O	C	Unused	Open
73	NC				
74	TEX	I	C	Unused	Connected to GND
75	V _{REF}	I		Reset standard voltage	Connected to V _{DD}
76	V _{FDP}	I		Power terminal for FL	
77	S0/PH0	O	P	MUTING	L: MUTING ON (Signal OFF)
78	S1/PH1	O	P	REC MUTE	H: MUTING ON (Signal OFF)
79	S2/PH2	O	P	PB MUTE	L: MUTING ON (Signal OFF)
80	S3/PH3	O	P	PROTECTION RELAY	H: RELAY ON

C: CMOS I/O

P: Pch open drain output

DP: Pch open drain output with pull-down resistor

9. PANEL FACILITIES



TUNER SECTION

- ① **FREQUENCY/station number display**
- ② **FM MONO indicator**
Lights when the FM MONO switch is pressed to select monaural FM reception.
- ③ **STEREO indicator**
This lights during FM stereo reception.
- ④ **TUNED indicator**
This lights to indicate that a station has been optimally tuned in.
- ⑤ **STATION CALL switches**
These are used to recall preset broadcasting stations and to preset the station.
- ⑥ **MEMORY switch**
This switch is used to memorize stations. When the switch is pressed, the FREQUENCY indicator will flash. To memorize the frequency of any station, press one of the STATION CALL switch while the frequency indicator is flashing.
- ⑦ **FM MONO switch**
Normally, the FM MONO indicator remains off. However, it may not be possible to tune in a desired FM station because it is too far away or because its signals are too weak. In cases like these, press the switch to set the reception to the monaural mode (FM MONO indicator lights) and tune in the station. The program of an FM stereo broadcast will be heard in mono. This switch will not function for AM reception. The FM MONO setting is memorized along with station frequency when presetting a station.
- ⑧ **BAND selector switch (FM/ AM)**
This is used to select the band of the desired station. The bands change alternately each time the switch is pressed.
- FM reception
AM reception
- ⑨ **TUNING switch (–, +)**
These are used to locate stations. Push the “–” switch to locate a station broadcasting on a lower frequency and the “+” switch to locate a station broadcasting on a higher frequency.

AMPLIFIER SECTION

- ⑩ **STANDBY/SLEEP indicator**
This indicator lights in standby status or when the sleep timer function is operating when the power cord is connected to a power outlet.
When the SLEEP key on the remote control unit is pressed, the sleep function activated for approximately 60 minutes, then enters the standby mode. (The STANDBY/SLEEP indicator flashes faster as the end of the set time nears.)
- ⑪ **POWER (STANDBY/ON) switch**
When this switch is set to the ON position, the STANDBY/SLEEP indicator goes out and power is supplied to the main circuits of the cassette tape deck receiver. The POWER unit's switch is geared to selecting the transformer's secondary so that even in STANDBY position, the unit's circuitry will work as long as the power cord is connected to a power outlet.
Disconnect the power cord from the power outlet when you do not plan to use the cassette tape deck receiver for a long period of time.
- The cassette tape deck receiver has a backup function, so it will return to the original status when the power cord is unplugged and soon again plugged into the power outlet.*
- ⑫ **SURROUND & STEREO WIDE switch**
(OFF, ON)
When rear speaker systems are connected to the REAR SPEAKERS terminals at the rear: By turning this switch ON, you can enjoy surround reproduction.
When rear speaker systems are not connected: By turning this switch ON, you can enjoy STEREO WIDE reproduction with greater left/right spread.
- NOTE:**
• In the case of a monaural source, a SURROUND & STEREO WIDE effect cannot be obtained.

⑬ PHONES jack

This is a “standard plug-type jack” for headphones.
NOTE:
Sound is not heard from the speakers when headphones are in use.

⑭ **FUNCTION switches/indicators**

The indicators light for the specified functions.

⑮ **REMOTE SENSOR window**

⑯ **VOLUME control/indicator**

The volume is increased when this control is turned clockwise, decreased when turned counterclockwise. When operating with the remote control unit, the control automatically turns clockwise when “+” is pressed, counterclockwise when “–” is pressed, and the indicator on the VOLUME control flashes rapidly. The indicator also flashes when the muting function is operated by the remote control unit.

⑰ **BALANCE control**

Usually set this control to the central position. If turned counterclockwise, the volume of the right channel will decrease. If turned clockwise, the volume of the left channel will decrease.

⑱ **MIC jack**

Used to connect microphones equipped with standard plug.

⑲ **MIXING LEVEL**

Adjusts the volume of the microphone.
Increasing the microphone volume reduces the source volume.

GRAPHIC EQUALIZER SECTION

⑳ **GRAPHIC EQUALIZER controls**

㉑ **SPECTRUM ANALYZER display**

CASSETTE TAPE DECK SECTION

- The cassette tape deck receiver is provided with an automatic tape selector function.
Deck I NORMAL/CrO₂, METAL
Deck II NORMAL/CrO₂
- ㉒ **DECK I TAPE COUNTER RESET switch**
- ㉓ **DECK I TAPE COUNTER**
3-digital display measures tape travel on deck I.
- ㉔ **DOLBY NR indicator**
- ㉕ **COPY MODE indicators**
- ㉖ **Deck I switches**
▶ (PLAY) Playback.
◀◀ (REW) Rewind
▶▶ (FF) Fast forward
■/▲ (STOP/EJECT) Stops tape travel. Ejects cassette if pressed when tape is stopped.
- ㉗ **COPY MODE switches**
These switches are used to select the copy mode.
HIGH High speed copying (double-speed, halftime copying)
NORMAL Normal speed copying
- NOTE:**
When the COPY MODE indicator is blinking (copy standby mode) the playback operation is not available for only DECK I or only DECK II, and the recording operation is not available for DECK II only.

㉘ **DOLBY *NR switch**

Press to activate noise reduction system. Use to play back tapes recorded using Dolby B NR.
• Tapes recorded using Dolby B NR should always be played back with the noise reduction system on. Sound quality will be adversely affected if they are played back with the system off, or if tapes recorded using a different noise reduction system are played back with the Dolby B NR system on.
• It is recommended that tapes recorded using Dolby B NR be so marked on the label. This will help to prevent incorrect setting of the noise reduction switch during playback.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
“Dolby” and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

㉙ **DECK II PAUSE (||) switch**

This switch is used to temporarily stop the tape in deck II. The PAUSE indicator lights during the pause mode. The pause mode is cancelled when the switch is pressed again. The PAUSE switch will not function while copying a tape.

㉚ **DECK II switches**

- (REC) Set to the recording mode.
- ▶ (PLAY) Playback
- ◀◀ (REW) Rewind
- ▶▶ (FF) Fast forward
- /▲ (STOP/EJECT) Stops tape travel. Ejects cassette if pressed when tape is stopped.

㉛ **DECK II MODE indicators**

- REC (●) Lights during recording
- PAUSE (||) Lights during the pause mode.